

Fighting Misinformation with Social Media Reporting: A Psychological Perspective

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(Received December 13, 2023; accepted April 24, 2024)

Keywords: misinformation, expectation confirmation model (ECM), expectation confirmation theory (ECT), protection motivation theory (PMT), misinformation reporting function

Misinformation on social media platforms has become a pervasive problem in recent years, with the potential to have a significant negative impact on society. One of the most effective countermeasures against misinformation is social correction, which refers to attempts to correct the source of misinformation. Social media platforms' misinformation reporting function (MRF) can be regarded as a form of social correction. However, current research on MRFs is limited, and there is a need to understand better the factors that affect users' intentions to use them. In this study, we aim to address this gap by integrating the expectation confirmation model (ECM) and protection motivation theory (PMT) to develop a research model that explains users' intentions to use MRFs. ECM posits that users' confirmation or disconfirmation of expectations determines their satisfaction with a new product or feature. PMT, on the other hand, emphasizes the role of threat appraisal and response appraisal in motivating behavior. The proposed research model hypothesizes that users' intentions to use MRFs can be affected by their threat appraisal of misinformation (including perceived severity and susceptibility), their response appraisal of MRFs (including self-efficacy, response efficacy, and response costs), and their confirmation or disconfirmation of expectations about MRFs. We conducted a quantitative study using a questionnaire survey to test the proposed research model. The questionnaire measured users' threat appraisal, response appraisal, confirmation or disconfirmation of expectations, and intentions to use MRFs. The data collected from the survey were analyzed using structural equation modeling. The findings of this study will have important implications for both theory and practice. Theoretically, the study will contribute to a better understanding of the factors affecting users' intentions to use MRFs. From a practical perspective, the study will provide valuable insights for social media platforms on designing and promoting MRFs that are effective in reducing the spread of misinformation. We explore the use of social media misinformation reporting capabilities. If the data collected from the MRF can be treated as training data for machine learning models and sensor-based misinformation detection systems, it will be possible

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<https://doi.org/10.18494/SAM4821>

to deal more effectively with the phenomenon of misinformation in social media through natural language processing and image analysis.

1. Introduction

In recent years, with the spread of the COVID-19 epidemic, the impact of misinformation has become increasingly severe, so much so that the World Health Organization (WHO) emphasized the “infodemic” effect of social media and raised concerns about the impact of social media. The seriousness of this problem lies in the fact that the past word-of-mouth information dissemination method has faded out and turned to today’s sharing function, which transmits information rapidly, like the spread effect of a virus. Therefore, it has never been more urgent to address the issue of false information on social media effectively.

In social networking sites (SNSs), studies have also shown that fake news spreads more rapidly than real news, as evidenced by the 2016 US presidential election. According to Allcott and Gentzkow,⁽¹⁾ fake news was viewed 87 million times on Facebook in the three months leading up to the election. This phenomenon is largely due to people being more likely to share news that aligns with their pre-existing views, as discovered by Guess *et al.*⁽²⁾ Interestingly, conservatives were more likely to share fake news, whereas liberals shared mostly real news during the election. Regardless of political affiliation, the spread of fake news can have serious repercussions on society, leading to misperceptions and a lack of trust in democratic institutions. Lazer *et al.*⁽³⁾ provided a comprehensive overview of the impact fake news has on social media and society at large.

However, the impact of misinformation is not only to clarify facts or reveal the truth afterward, but, more importantly, to suppress the spread of misinformation. According to a Pew Research Center report, there is much misinformation on social media/networking platforms (SMPs). For example, 57% of those who primarily get their news from social media report seeing at least some misinformation involving COVID-19. Research also showed that when faced with this type of misinformation, at least 25 to 35% of users will respond in some way with a correction.

Considering the rampant spread of misinformation on social media, it has become increasingly necessary to develop automated, sensor-based systems capable of detecting and countering false information by analyzing various data sources such text, images, and user interactions. In this regard, it is crucial to comprehend why users report errors and how they behave while doing so on the platform, as this information can provide valuable training data and psychological insights that can inform the design of effective sensor-based error message detection systems. One of the most effective countermeasures is “social correction,” which refers to attempts to correct the source in social media, as social links are often the primary source of information. In this study, we consider SMPs’ misinformation reporting function (MRF) as a corrective action. For example, during the COVID-19 pandemic, WHO publicly called on people to use the notification functions of SMPs if they see false or misleading content online to curb the widespread and rapid spread of inaccurate information.

However, current research on the MRF of SMPs could be extensive. Existing research mainly focuses on factors affecting the behavior of correcting misinformation while ignoring the impact

or obstacles of SMPs themselves. According to the literature, users may sometimes feel restricted when expressing opinions online or correcting misinformation. Therefore, reporting functions through SMPs may reduce users' sense of inhibition. Research has shown that individuals may feel constrained by privacy and social factors when sharing their thoughts or pointing out inaccuracies online.^(4,5) As a solution, social media reporting systems can aid in diminishing these reservations and encouraging users to report errors.

To deeply explore the factors resulting in this issue, we combine the expectation confirmation model (ECM) and protection motivation theory (PMT) in this study to explore users' behavioral intentions toward SMPs' MRF. To the best of our knowledge, there is no research combining the above two theories in misinformation research.

ECM has also been widely used to understand users' attitudes towards new products or features, such as mobile apps, mobile payments, mobile wallets, and online stores. PMT emphasizes that intention is one of the critical factors in predicting behavior. Both threat appraisal and response appraisal affect intentions. In recent years, PMT has been applied to not only the study of COVID-19 vaccination intention but also the study of influenza vaccination. In addition, Mousavi *et al.*⁽⁶⁾ applied PMT to the issue of online privacy protection, and Wu⁽⁷⁾ used it to study online knowledge concealment. PMT was also widely used in corporate information security issues.^(8,9)

On the basis of the above, we will integrate ECM and PMT to establish a research model that aims to explore answers to the following research questions:

RQ1: Will the threat appraisal of misinformation on SMPs (including severity and susceptibility) affect users' intentions to use the MRFs of SMPs?

RQ2: Will users' response evaluations of misinformation (including self-efficacy, response efficacy, and response costs) affect their intention to use SMPs' MRF?

RQ3: Does threat appraisal mediate ECM and intention to use SMPs' MRF?

Finally, through a questionnaire survey, we will quantitatively analyze these assumptions to study this issue in depth.

2. Literature Review

2.1 PMT

PMT is an essential psychological theory that seeks to explore individual responses to threats or dangerous behaviors extensively. This theoretical framework is not only of widespread interest in psychology but also plays a crucial role in our understanding of how to take steps to protect personal health. This theory has been widely used in multiple practical situations, such as smoking, chronic disease management, infectious disease prevention, and even vaccination, and has been empirically supported in many studies.

Rogers⁽¹⁰⁾ proposed integrating PMT with Leventhal's parallel process model. This combination enriched our understanding of fear appeals and shed more light on the process of threat coping. The three core components they proposed, namely, perceptual susceptibility, perceived severity, and response efficacy, run through the theory. Maddux and Rogers⁽¹¹⁾ added the concept of "self-efficacy" to improve the explanation of the coping process.

Witte⁽¹²⁾ stated that fear appeal consists of two key components. First, it attempts to enhance the perception of a threat, including its severity (i.e., the extent of possible harm) and the likelihood of the threat occurring. Second, it works to improve our knowledge and ability to respond to threats.

The emotion of fear has been a popular subject of research over the past few decades, with perceived threat and cognitive efficacy in particular considered core variables in research. When we perceive a threat, we become aware of its presence. An effective fear appeal not only elicits the perception of a threat but also convey the seriousness of the threat and its impact on a specific group of people. In other words, we can more clearly understand the severity of threats and potential risks. This knowledge can help us more realistically assess the extent and likelihood of threats. In PMT, information comes from various sources, including fear appeal, observational learning, and prior experience, as stimuli that may trigger individual cognitive processes and thereby generate protective motivation. Among them, media messages commonly act as one of the antecedents of cognitive processes.⁽¹³⁾

2.2 Threat appraisal

Regarding threat appraisal, perceived threat susceptibility is crucial for assessing the likelihood of a threatening event. For example, when using new network technologies, threats may include financial losses, misuse of personal information, or data leakage during online transactions. According to PMT, there is a direct relationship between perceived threat susceptibility and behavior. This association has also been demonstrated in information security.⁽¹⁴⁾

Another threat appraisal dimension is perceived threat severity, which is used to evaluate the seriousness of the consequences of an event. For information systems, this involves considering the severe consequences of incidents, such as hacking attacks and financial fraud. Research shows that perceived threat severity plays an essential role in motivating the implementation of recommended behaviors, such as conserving energy to mitigate global warming, complying with security policies, and using counterintelligence software.

2.3 Coping appraisal

The coping appraisal process involves response efficacy, self-efficacy, and response cost. Response efficacy involves an individual's belief that performing a recommended behavior will have actual effects. Previous research has shown a positive relationship between the evaluation of the effectiveness of protective measures and behavioral intentions, especially in new technology use contexts.⁽¹⁴⁾

On the other hand, self-efficacy is relevant to an individual's confidence in their abilities, that is, whether they can effectively take measures to deal with threats. This increase in confidence helps increase willingness to perform adaptive behaviors. The association between self-efficacy and behavior has been widely explored in psychological research and confirmed in information security research.

Response costs are the costs of taking adaptive behavior, which may be monetary, personal, or time. According to the disclosure literature, if the perceived costs of disclosure outweigh the benefits, individuals would be less likely to share their data.⁽¹⁵⁾ Empirical findings on response costs have shown that they can predict harmful behavioral intentions in a variety of contexts, such as breast cancer risk genetic testing, risk communication, information security, and home wireless networks.

In the past, PMT provided a theoretical framework to help us understand how users evaluate the threat and act against threats to personal privacy in the online environment. Similar situations, such as false information on SMPs, can trigger threatening situations and spread rapidly through the Internet. When we perceive a threat from disinformation, we need to evaluate the options around us. Therefore, PMT applies more to SMPs than other theories (e.g., the health belief model and theory of planned behavior).

2.4 ECM

ECM is widely known as one of the essential theories to explain users' post-adoption behavior, especially in the fields related to information systems and new technologies, such as SNS, mobile data services, online repeat purchase intentions, online services, and government e-services.

ECM originates from the expectation confirmation theory⁽¹⁶⁾ and is used to analyze user behaviors, such as reuse intention, satisfaction, performance, and expectation. The relationship between expectation and confirmation has now become an important tool to clarify users' continued use intentions for specific information and technology products and services.

Bhattacharjee⁽¹⁷⁾ provided an empirical case for ECM, where he found that initial adoption decisions and causal relationships can explain users' continued use behavior of information technology and services. This research framework points out that user satisfaction with information technology positively impacts continuous use behavior and emphasizes the importance of perceived usefulness in affecting continuous use intention. In addition, expectation confirmation is also regarded as one of the factors affecting perceived usefulness, especially when users are still determining the initial perceived usefulness of information technology. Therefore, users evaluate and confirm the performance by comparing original expectations with experience. If expectations are confirmed, their perceived usefulness and satisfaction will be enhanced accordingly.

ECM was further developed on the basis of self-perception theory.⁽¹⁸⁾ The theory's core in a traditional ECM is the relationship between expectations and confirmation. However, Bem's self-perception theory shifts the focus from experience alone to how users adapt to new information, adjusting their expectations and affecting their subsequent behavior. This concept is significant for understanding users' subsequent adoption behavior of new technologies, products, or services. It highlights how individuals' perceptions of new information affect their expectations and guide their behavior. In addition, this adjustment of self-perception may also be affected by other external factors, such as the social environment or other people's behavior.

Through self-perception theory, extension makes ECM more adaptable and flexible and can more effectively explain users' behavioral changes in the face of changes.

3. Methodology

3.1 Hypothesis development

The PMT literature suggests that decision makers' protection motivation would increase when threat appraisal concluded high risks. In this study, we hypothesize that their threat appraisals will drive the protection motivation of users of SMPs. Threat appraisal is the result of assessing threat severity and perception. Threat severity is used to assess the severity of the consequences of an event, and "threat susceptibility" is used to assess the likelihood of a threatening event occurring.

The coping evaluation process involves response efficacy, self-efficacy, and response cost. Response efficacy involves an individual's belief that performing an adaptive behavior will have actual effects. Self-efficacy is related to an individual's confidence in their abilities, that is, whether they can effectively take measures to deal with threats. Response cost is taking the recommended behavior.

Response efficacy differs from perceived usefulness in ECM in that response efficacy refers to an individual's belief that implementing a recommendation will be effective in avoiding a threat. Perceived usefulness refers to the degree to which an individual finds using a specific technology or service helpful. In this study, we explore whether SMPs' reporting function (technology or service) can effectively reduce the threat of individuals encountering false information and increase usage intentions. In addition, expectation confirmation can help evaluate platforms' reporting functions. Therefore, using perceived usefulness instead of response efficacy in this study may be more appropriate.

We hypothesize that when users of an SMP believe that the threat level of false information on the platform increases, the users will increase their intention to use the reporting function of the SMP to avoid being threatened by false information. As shown in Fig. 1, we put forward the following points:

H1: Threat severity positively affects the intention to use the reporting function.

H2: Threat susceptibility positively affects the intention to use the reporting function.

H3: Self-efficacy positively affects the intention to use the reporting function.

H4: Response cost negatively affects the intention to use the reporting function.

According to Bhattacharjee,⁽¹⁷⁾ online store performance confirmation can be regarded as an initial adoption belief, serving as a driving force to induce users' post-adoption beliefs, that is, perceived usefulness. Bhattacharjee⁽¹⁹⁾ further argued that online store performance confirmation may play a key role in determining perceived usefulness, particularly in exploring the ongoing use of information systems.

The confirmation of expectations means that the expected benefits are obtained through IT, which, in turn, has a positive impact on IT satisfaction. On the basis of the ECM, if users' perceived usefulness of IT is positive, it will positively impact satisfaction. On the contrary, it will have a negative impact. Many previous studies have used ECM as a theoretical basis to examine the use of online services or paid mobile device applications and found that performance confirmation positively impacts perceived usefulness/value. Similar studies have also pointed

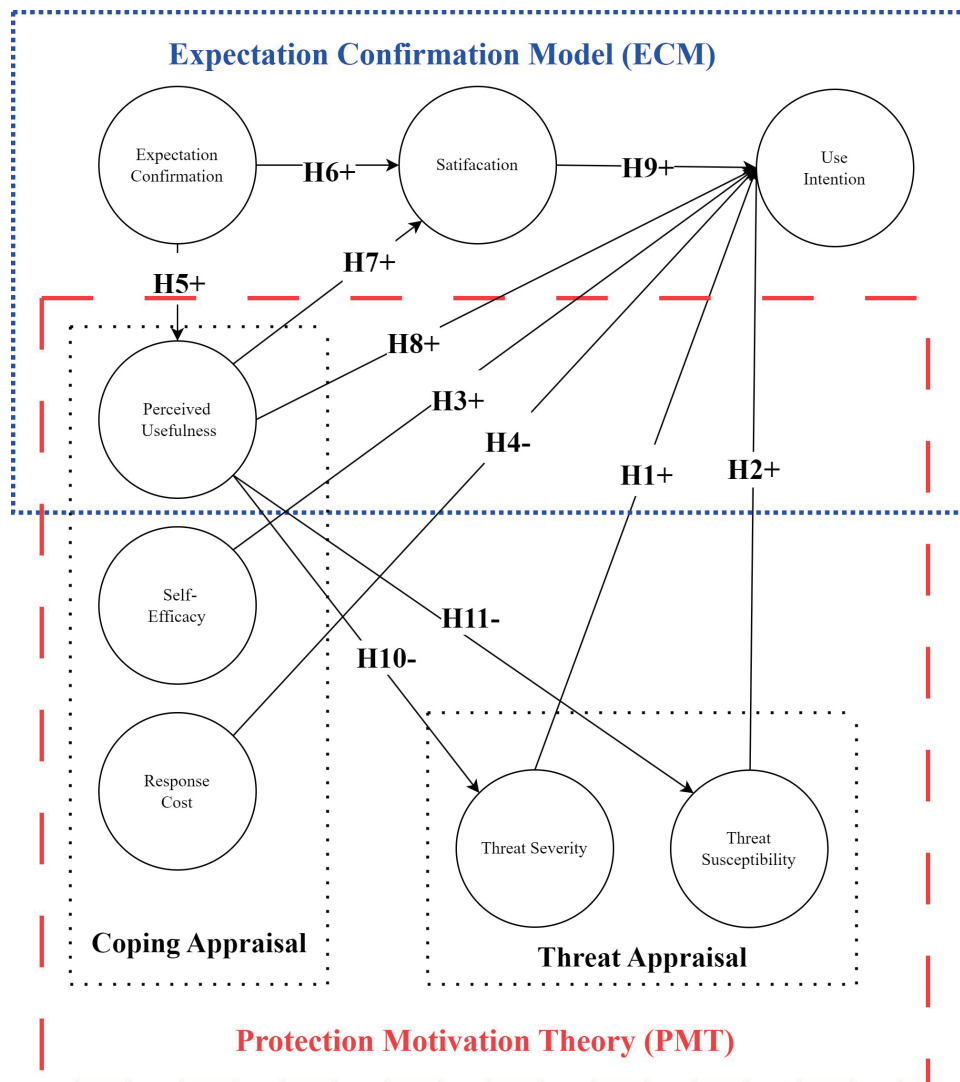


Fig. 1. (Color online) The research model shows the proposed hypotheses where the symbol “+” indicates the suggested positive impact and the symbol “-” implies the suggested negative impact.

out the relationship between performance confirmation and perceived usefulness, and ECM has been used to explore online technologies such as impulse buying and mobile advertising.⁽²⁰⁾

Previous market research found that the higher the user’s expectations, the higher the satisfaction. Furthermore, consistent with findings from the IT adoption literature, perceived usefulness is the most essential determinant of users’ adoption intentions. Therefore, ECM assumes that users’ perceived usefulness of IT positively impacts their intention to continue using IT.

Finally, ECM assumes that users’ confirmation of expectations positively impacts the perceived usefulness of IT. Particularly when users are uncertain about the initial perceived usefulness, they can adjust their confirmation through experience.^(17,19)

Therefore, the same theoretical framework can be applied to explore users' intention to use SMPs' reporting functions. We propose the following hypothesis:

H5: Expectation confirmation positively affects perceived usefulness.

H6: Expectation confirmation positively affects satisfaction.

H7: Perceived usefulness positively affects satisfaction.

H8: Perceived usefulness positively affects usage intention.

H9: Satisfaction positively affects usage intention.

The original PMT model did not consider the experience, such as using whistleblowing/reporting functions in the context of facing unverified information. Although adding a variable, such as prior experience, to PMT models is suggested, only some studies have included it. In the use of information communication technology, a survey of college students shows that prior experience with computer viruses significantly predicted intentions to use antivirus software. Research on public health shows that as the pandemic dragged on, people became more aware of COVID-19. As knowledge and experience increase, the effects of threat perception and severity on preventive behaviors may be attenuated. In this study, we showed that experience relates to an individual's previous experience dealing with the threat of misinformation.

In similar logic, the level of perceived usefulness of the reporting function of a SMP will affect the strength of the user's threat appraisal (threat severity and threat susceptibility). If there is a high level of perceived usefulness, the user's threat appraisal would be mitigated. Conversely, the perceived threat would increase. PMT centers around the idea that people are more likely to adopt recommended behaviors when they become aware of a threat and wish to reduce their risk of encountering it, for instance, using environmentally friendly products to combat environmental damage or getting vaccinated to lower the risk of severe illness from COVID-19. These actions help to curb the threat and reduce negative emotions. We consider the "behavioral outcome expectation" and "perceived usefulness" to be the same. If the outcome meets expectations, it can effectively reduce the threat. Therefore, we hypothesize that perceived usefulness in ECM will be negatively related to threat severity and perception. In other words, if past experiences have successfully helped people cope with and reduce threats, they will be less sensitive to misinformation and threat severity. This study's sample has confirmed that the subjects have used social media reporting systems.

Therefore, we infer that perceived usefulness negatively relates to threat appraisal. We put forward further hypotheses as follows:

H10: Perceived usefulness negatively affects threat severity.

H11: Perceived usefulness negatively affects threat perception.

3.2 Survey design

The first part of the questionnaire of this study requires the subjects to answer questions about the social media they commonly use and whether they have used the SMP's false information reporting function to screen subjects.

There are eight facets in the second part, and the questions of the facets are selected and modified from previously verified items to be relevant to false information. The three dimensions of performance confirmation, satisfaction, and perceived usefulness in ECM are modified from Bhattacharjee,⁽¹⁹⁾ among which the perceived threat severity, perceived threat susceptibility, self-efficacy, and reaction of the PMT cost were modified from Witte⁽²¹⁾ and Johnston and Warkentin,⁽²²⁾ and behavioral intention was modified from Johnston and Warkentin.⁽²²⁾ All items were evaluated using a five-point Likert scale (5: strongly agree; 1: strongly disagree).

To maintain the reliability and validity of each construct, after selecting the construct, no more questions will be added or deleted at will, and the above 28 questions will be adapted into a questionnaire that fits the background of this study, as shown in Table 1. Finally, demographic variables (gender, age, and education level) were used as control variables to complete the initial questionnaire design of this study.

3.3 Data collection

In this study, we used convenience sampling to collect samples through an online questionnaire. Using Google Forms requires logging in to fill in and publish the questionnaire on Facebook groups and some well-known forums. Although no specific ethnic group was set as a research sample, Generation Z, or Gen Z, is defined by the American think tank Pew Research Center as a group born after 1996. Another September study released by the Pew Research Center pointed out that Gen Z has several characteristics, including having the highest level of education, understanding the online world, and growing up after the advent of smartphones. Because they are familiar with the Internet and digital tools, Gen Z pays more attention to the source and details of information and is critical and skeptical. They also have greater confidence in identifying false information.

According to the Varieties of Democracy 2021 report released by the University of Gothenburg, Sweden,⁽²³⁾ Taiwan has been the champion of foreign disinformation attacks for nine consecutive years. Digital Society is the latest unit of the V-Dem project. The survey items include the frequency of dissemination and reception of false information by various governments, how to respond to false information on different platforms, overall response capabilities, privacy, protection, how people use the media, and how political elites and political parties spread their messages.

From the above two points, the age range of Taiwan's college and university students can fall into the Gen Z group. In addition, the penetration rate of mobile phones is high, and Taiwan is also on the front line of facing false information. It is reasonable to use this as the primary research object. The sample was collected from students from colleges and universities in the north, central, south, and east of Taiwan according to the population distribution ratio of Taiwan.

Finally, we collected 352 samples, each owning the experience using the SMP reporting system. There are 267 valid samples after screening, and Table 2 shows the detailed sample characteristics.

Table 1
Measurement items for the research tool.

Concept	Question
Confirmation	1. Based on my experience, SMPs handle false information better than expected.
	2. According to my experience, SMPs are more effective in dealing with false information than expected.
	3. From what I understand, SMPs deal with misinformation faster than I expected.
	4. As far as I know, the ability of SMPs to handle misinformation meets my expectations.
Satisfaction	1. Overall, I am convinced of the functions and policies of SMPs in providing false information.
	2. Overall, I am delighted with the functions and policies of SMPs in providing false information.
	3. Overall, I appreciate the attitude of SMPs in facing false information.
Perceived Usefulness	1. SMPs make me feel that they can deal with the problem of misinformation.
	2. SMPs make me feel like they are actively addressing the problem of misinformation.
	3. SMPs make me feel that they can effectively deal with misinformation issues.
Use Intention	1. When false information appears on SMPs, I tend to use the reporting functions of SMPs
	2. When false information appears on SMPs, I plan to use the reporting functions of SMPs.
	3. When false information appears on SMPs, I will not hesitate to use the reporting functions of SMPs.
Threat Severity	1. The spread of false information on SMPs is a severe issue for me.
	2. The spread of false information on SMPs is essential for me.
	3. The forwarding of false information on SMPs is a phenomenon that is difficult for me to ignore.
Threat Susceptibility	1. I feel that the SMPs I use are full of false information.
	2. I feel that false information appears frequently on my SMPs.
	3. I feel that the risk of being exposed to false information on SMPs is high.
Self-efficacy	1. I am confident in my ability to use the reporting functions of SMPs.
	2. It is simple and easy for me to operate the reporting functions of SMPs.
	3. It is easy for me to use the reporting functions of SMPs.
Reaction Cost	1. Using the reporting functions of SMPs is time-consuming.
	2. Using the reporting functions of SMPs requires much effort.
	3. The cost of using the reporting functions of SMPs is very high.

Table 2
Demographic characteristics of the respondents.

		Frequency	Percentage (%)
Gender	Male	127	48
	Female	140	52
Age	15–24	198	74
	25–34	53	20
	35–44	13	5
	Over 40	3	1
Frequently used social media	Instagram	105	39
	Facebook	84	31
	YouTube	38	14
	Line	22	8
	Others (Twitter, TikTok)	18	8
Education	Bachelor's	216	81
	Master's	28	10
	Others	23	9
Total		267	100

4. Data Analysis and Results

Adopted for this research, the partial least squares structural equation modeling (PLS-SEM) has several advantages in structural analysis and prediction. First, PLS-SEM excels at handling multivariate data and is particularly suitable for exploring complex relationships and models, and this adaptability makes PLS-SEM superior in predictive modeling, exploratory analysis, and measurement models.

In addition, PLS-SEM requires fewer assumptions than other methods. PLS-SEM does not require population assumptions, even when dealing with the non-normal distribution of data and small samples, allowing researchers to deal with different data types more flexibly. PLS-SEM performs equally well in terms of model validation and prediction capabilities, which emphasizes that PLS-SEM enables the validation of structural models and combines prediction and causality analysis in the same model, which is very important for building accurate predictive models. For implementing PLS-SEM, we adopted the software package SMART-PLS 4.0.

4.1 Scale testing

This study was tested through confirmatory factor analysis (CFA) to assess internal consistency (reliability), convergence, and discriminant validity. We used Cronbach's α and composite reliability (CR) as indicators of reliability measures, and the results showed that these constructs exhibited good internal consistency. Furthermore, in Table 3, each item demonstrates high loadings on its respective construct.

It is suggested that a standardized factor loading greater than 0.708 for each research question is suitable and can explain almost 50% of the observed variation.⁽²⁴⁾ The item loadings of all questions in this study range from 0.734 to 0.956, and there is no cross-loading, as shown in the table below, so all question indicators are retained.

Likewise, a threshold with an average variance extracted (AVE) value greater than 0.5 was used as a detection metric. The smallest one in this study was 0.751. In summary, this study has good reliability. To assess discriminant validity, research⁽²⁴⁾ suggests that all constructs should share more variation with other constructs than their assigned items. Table 3 shows that the matrix diagonal values (representing the square root of AVE) exceeded the off-diagonal values of their corresponding rows and columns, thus demonstrating sufficient discriminant validity for this study.

4.2 Model testing

In this study, we used the bootstrap method to generate an analysis of path coefficients and explainable variation, as shown in Fig. 2. First, the model explained 47.7% of intention to use, 70.8% of perceived usefulness, 79.3% of satisfaction, 3.6% of threat perception, and 2.9% of threat severity.

Table 3
Results of reliability and validity for constructs.

*Construct	Item	Loading	Cronbach's α	CR	AVE	SAT	WITH	COULD	UI	TS	TSU	SE	RC
SAT	SAT1	0.910	0.916	0.918	0.856	0.925							
	SAT2	0.925											
	SAT3	0.905											
	SAT4	0.902											
CON	CON1	0.921	0.913	0.917	0.852	0.829	0.923						
	CON2	0.943											
	CON3	0.905											
PU	PU1	0.938	0.930	0.930	0.877	0.814	0.814	0.936					
	PU2	0.957											
	PU2	0.914											
UI	UI1	0.949	0.912	0.916	0.851	0.019	0.019	0.034	0.922				
	UI2	0.938											
	UI3	0.880											
TS	TS1	0.913	0.917	0.921	0.857	-0.090	-0.166	-0.148	0.580	0.926			
	TS2	0.938											
	TS3	0.927											
TSU	TSU1	0.923	0.922	0.927	0.864	-0.147	-0.132	-0.171	0.562	0.685	0.930		
	TSU2	0.940											
	TSU3	0.926											
SE	SE1	0.734	0.828	0.849	0.751	0.081	0.002	0.020	0.589	0.589	0.579	0.867	
	SE2	0.921											
	SE3	0.931											
RC	RC1	0.913	0.918	0.921	0.860	0.216	0.230	0.211	-0.278	-0.260	-0.255	-0.457	0.927
	RC2	0.940											
	RC3	0.928											

*Composite Reliability = CR; Satisfaction = SAT; Confirmation = CON;
Perceived Usefulness = PU; Use Intention = UI; Threat Severity = TS;
Threat Susceptibility = TSU; Self-Efficacy = SE; Response Cost = RC

The following path coefficients were observed: the path coefficient between satisfaction and usage intention (β -value = 0.326, p -value < 0.01), the path coefficient between perceived usefulness and usage intention (β -value = -0.172, p -value > 0.05), the path coefficient between threat susceptibility and usage intention (β -value = 0.234, p -value < 0.05), the path coefficient between threat severity and usage intention (β -value = 0.226, p -value < 0.05), the path coefficient between self-efficacy and usage intention, the path coefficient between usage intention and self-efficacy (β -value = 0.287, p -value < 0.05), and the path coefficient between response cost and usage intention (β -value = -0.062, p -value > 0.05). Therefore, hypotheses H1, H2, H3, and H9 stand, while there is not enough evidence to support H4 and H8. On the basis of the above six hypotheses, the intended structural equation can explain that the variation (R^2) is 47.7%.

Second, the model analysis results also prove the negative correlation between perceived usefulness and threat sensitivity (3.6%) and threat severity (2.9%). The path coefficient between perceived usefulness and threat perception (β -value = -0.191, p -value < 0.05) supports hypothesis H11. The path coefficient between perceived usefulness and threat severity (β -value = -0.172, p -value < 0.05) supports hypothesis H10. The path coefficient of expectation confirmation to perceived usefulness (β -value = 0.841, p -value < 0.01) supports hypothesis H5. The path coefficient of expectation confirmation to satisfaction (β -value = 0.355, p -value < 0.01) and the path coefficient of perceived usefulness to satisfaction (β -value = 0.571, p -value < 0.01) support hypotheses H6 and H7, respectively.

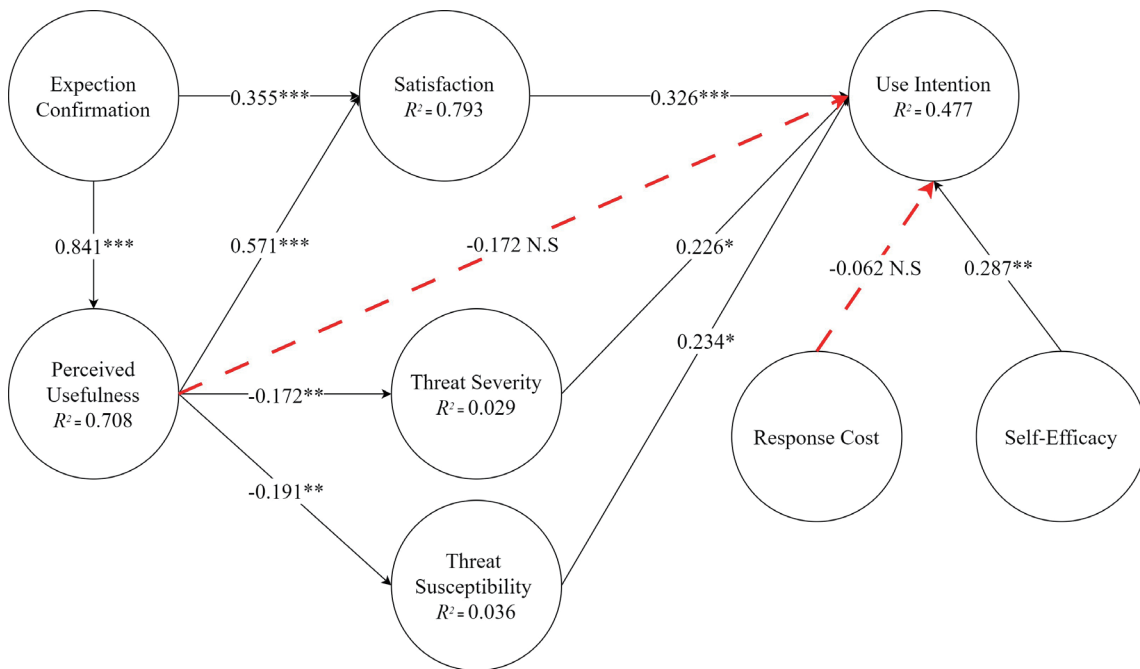


Fig. 2. (Color online) Testing results of the proposed model. (N.S. = non-significant; ***: $p < 0.001$; **: $p < 0.01$; *: $p < 0.05$).

5. Discussion and Conclusions

In this study, we attempted to use an integrated research model of ECM and PMT to affect the motivational factors of users' intention to reuse the SMP reporting system when encountering false information on social media. The behavior of subjects has a significant correlation with their perception of the reporting function. Our research model provides four positive factors and one negative factor that significantly affects subjects' actions in unfavorable situations—the intention of using the information.

We found that subjects' performance confirmation significantly impacted perceived usefulness and satisfaction. In PMT, threat severity and threat perception completely mediate between perceived usefulness and reuse intention. In this regard, we also tested the negative and significant relationship between subjects' perceived usefulness and reuse intention in a non-threatening situation. This indicates the test subjects' experience handling false information using the platform's reporting function. Instead, it becomes an obstacle for them to use it again. Finally, subjects had high confidence in using these platform features (high self-efficacy).

The insignificant effect of response cost on reuse intention is unexpected. In other words, when faced with false information, our subjects believe that they do not need to invest much time and extra costs when using the reporting system, but this cannot be a factor that affects users.

5.1 Implication of theories

From an academic perspective, we confirmed the effectiveness of ECM and PMT in understanding subjects' behavior using the platform's misinformation reporting feature. By understanding the subjects' views on the functions of the notification system through an integrated research model, we can further understand the relationship between ECM and PMT. Furthermore, we are the first to propose this integrated model and conduct an empirical study. The results of this study contribute to the field of information communication, where research between the two theories has received relatively limited attention in the past, even within the field of information management.

Our study provides preliminary evidence that perceived usefulness in ECM only sometimes leads to action if the user's threat appraisal is effectively slowed. This finding is particularly noteworthy because the SMP used may be filled with a large amount of false information, and users may be unable to arouse threatening emotions when exposed to too much false information. In other words, the subjects feel numb to the flow of false information and do not want to use the platform because they think it cannot be effectively processed (perceived usefulness has a negative and significant relationship with intention to use). As shown in Fig. 3, the model explains only 5% of usage intentions. Therefore, our results after adding PMT confirmed that threat appraisal can effectively explain the subjects' intention to use.

5.2 Implication of practice

This research provides important implications for SMP operators. First, our results indicate that subjects' expectations about misinformation systems confirm that this is a valued feature. However, the circulation of false information on the SMP used involves the interests of all users. In addition, we found that subjects in non-threatening situations are skeptical about the platform's processing capabilities. This is a significant signal but also provides industry players with corresponding perspectives. We suggest that platform operators periodically publish review reports on false information (for example, quoting V-DEM's annual report or the platform's performance in handling false information) and survey users' satisfaction before publishing it so that other users can encounter false information simultaneously and encourage users to report intentions.

From the perspective of self-efficacy and response cost, past users said that it is easy to use the notification function, and there is almost no implementation cost. Therefore, if this service function is expressed in a language that is effortless for the public to understand, the notification function can be more widely adopted. It will be of positive help to the sustainable operation of SNS.

This study has several limitations. First, there may be other well-known theories that can more effectively explain the subjects' behavior in using the reporting system when faced with nonstop information. For example, the information systems success and technology acceptance models can be used as alternative theories. In addition, it is also possible to measure the direct or indirect relationship between social influence and social cognition on user intentions. We also

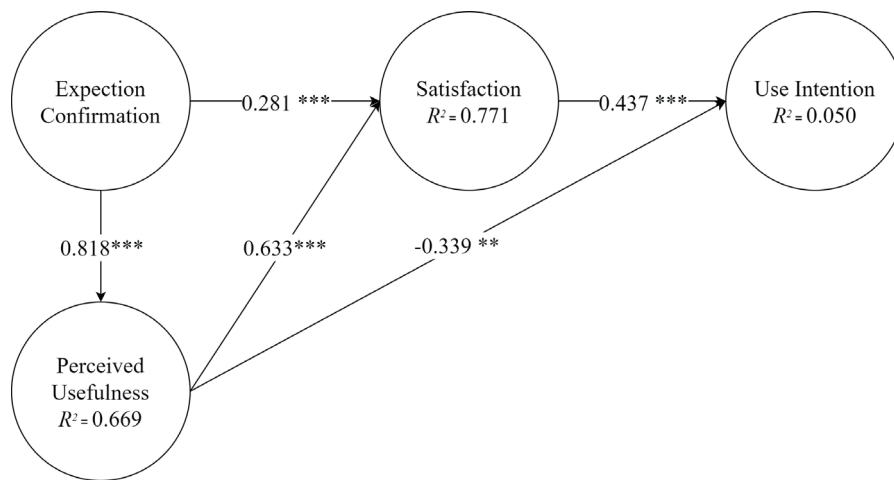


Fig. 3. Testing results of ECM (N.S. = non-significant; ***: $p < 0.001$; **: $p < 0.01$; *: $p < 0.05$).

did not investigate the information literacy of the subjects. Current relevant research also confirms that information literacy is related to verifying false information.

Second, the primary samples in the research model are from Taiwan. More caution is required when extrapolating the results of this study to different ethnic groups and cultures. Previous studies have shown that demographic information may be significantly related to the adoption patterns of specific technologies and services. Therefore, it is recommended that future research leverage the results and contributions of the research model proposed in this study to address significant limitations and thereby gain a more comprehensive understanding of subjects' behavior. The significance of these discoveries lies in their potential to enhance the efficacy of automatic error message detection systems, refine the reporting capabilities of error messages, optimize the collection of user feedback data, and leverage the power of machine learning to analyze SMP sensor data. Future research efforts may benefit from exploring the development of a sensor-based error message detection interface and crafting a usability process centered on identified psychological factors.

Acknowledgments

This study was funded by the National Science and Technology Council under the Taiwan Ministry of Science and Technology (grant no. 112-2410-H-167-001) and supported by National Chin-Yi University of Technology, Taiwan.

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