

RESEARCH ARTICLE

# Does Performance Management Effectiveness Matter? Testing the Expanded Expectations Disconfirmation Model of Local Disaster Risk Reduction

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**Abstract:** With the heightened demand for the public sector to adopt various measures needed for disaster management, local governments are expected to employ adaptive and innovative organizational approaches in enhancing the quality of local disaster management. Primarily, although studies have examined various predictors of disaster management performance, few explored the possible contribution of the performance management system through the lens of the expectancy disconfirmation model (EDM). Also, the study examines and finds support for EDM, positing that it functions well in light of local government employees' perception of disaster management performance. Employing data from a regional survey in the Philippines of disaster risk reduction management officers from 98 municipalities and cities in the Cagayan Valley region, the expanded EDM was tested via the expectation maximization and estimate structural equation models. Results of the study largely support the application of EDM to the areas of services included in the local disaster management, focusing on the employee perspective. The study confirmed direct relationships of variables, that is, expectation on DRRM performance, perceived DRRM performance, perceived disconfirmation, and satisfaction. The study also finds that performance management system effectiveness has a direct relationship with the local disaster management performance in line with EDM perspectives. Finally, the study concludes that the notion of performance management for public managers highlights the need to activate and effectively implement cyclical performance management processes.

**Keywords:** disaster management, performance management, expectancy disconfirmation model, local government, structural equation model

With the recurrence of typhoons, earthquakes, landslides, flash floods, and other catastrophic incidents, governments have moved decisively away from a facilitative role in emergency management but instead taking a decentralized disaster management approach (Henstra, 2010). In most countries, local governments are at the forefront of disaster management, and they play an important role in disaster prevention and mitigation, preparedness, response, and rehabilitation and recovery (Henstra, 2010; Newkirk, 2001). For example, in the Philippines, although national and local government units are involved in various areas of disaster management (i.e., preparedness, mitigation, response, and recovery), major functional responsibility is delegated to the municipal governments. This is done for practical reasons. Municipal governments have the capacity to (a) respond immediately in critical hours during times of disaster, (b) develop appropriate and applicable disaster management policies, and (c) design disaster management programs in their specific context (Newkirk, 2001). However, the performance of these functional responsibilities depends greatly on the capability and competency of the municipal governments to plan and prepare emergency management approaches (Henstra, 2010). Disaster management may be greatly influenced by politico-administrative issues, for example, coping with uncertainty, providing surge capacity, organizing a response, and communicating with the public (Boin et al., 2006); and resource capabilities of local governments such as institutional, human, policy, finance, technical, and leadership resources (Kusumasari et al., 2010).

In this era of accountability, public managers and politicians are strongly pressured to reduce risk and strengthen communities' resilience against natural and man-made hazards. Citizens are always implicit in questions concerning disaster management output and outcomes in the local government: Is the local government prepared to respond to disasters? Has damage increased? Has the quality of response, rehabilitation, and recovery efforts improved? In short, are the government's efforts to mitigate hazards, reduce disaster vulnerability, and cope with the impacts of disaster producing the target results? The answers to these questions are important in that they provide valuable information to public managers, legislators, and local chief executives on the allocation and reallocation of public resources. This allows decision-

makers to adjust and set priorities for disaster and emergency management.

Demand is growing for the public sector to adopt various measures needed for local disaster management, such as performance management systems like the evaluation of the quality of disaster management (Simpson & Katirai, 2006). Performance management offers the opportunity to quantify outputs, allowing decision-makers, stakeholders, and the public to receive feedback and make meaningful decisions (Holzer & Yang, 2004). Performance measures and reporting may promote innovation and result in improved behavior, motivation, and processes (Radnor & Barnes, 2007). The ultimate purpose of performance management is to enhance the performance of public agencies and the quality and value of governmental outcomes (Behn, 2002) and to ensure that all organizational components work smoothly together or similarly to achieve desired organizational goals (Biron et al., 2011).

In the context of disaster management, performance management could offer planned organizational activities or interventions seeking to improve individual and organizational performance, with the main goal of enhancing the effectiveness of disaster management. Performance management encompasses initiatives such as organizational and individual goal-setting, performance appraisal, incentives and motivation, and human resource development (Lawler, 2003). Well-grounded and locally designed disaster risk reduction management efforts would enable an organization to strategically plan, evaluate, and control performance to align the organization's decisions, resources, and activities with the desired result (Aguinis, 2009; Bento & White, 2006).

Despite the will of local governments to improve disaster management programs and policies by integrating performance management systems, performance remains weak and inconsistent (Anog et al., 2018), and there is disparity among municipal governments in the quality of planning and emergency response (Gerber et al., 2005; Norman & Coles, 2003; O'Brien & Read, 2005). Local disaster management performance may be negatively affected by limited resources and disinterested public and political leaders (Henstra, 2010; McEntire & Dawson, 2007). Along this line, the present study argues that there is pressure on local disaster managers to emphasize value and to ensure high quality in disaster management, ensuring

effective use of allocated resources, preparedness, and responsiveness in emergencies. Additionally, because disaster managers face extraordinary challenges (environmental, organizational, managerial, and individual) that may influence disaster management, their opinion of its overall performance matters. Although evaluating local disaster management systems from the perspective of the citizens (the demand side or the recipients/users of services) and measuring their satisfaction is crucial, it is equally important to understand the processes and challenges faced from the perspective of disaster managers (the supply side or service providers), as well as their job satisfaction. In any event, all public managers are ultimately held accountable to the public for their performance (Silvia & McGuire, 2010).

Employing the expectancy-disconfirmation model (EDM), this study determines the relationship of performance management and employee perception with a successful implementation of disaster risk and reduction initiatives and programs in the context of local government. This helps to clarify the processes by which municipal government employees form satisfaction judgments of disaster management programs and policies. The study seeks to contribute to the literature in two respects: (a) testing the basic model of expectancy-disconfirmation with respect to local government employees' perception of disaster management performance; and (b) expanding the disaster management EDM by including factors that may influence employee expectations and performance (i.e., performance management system effectiveness, performance management adoption, political support, organizational support, and stakeholder participation).

Drawing on disaster and performance management in the public sector, the present study builds on the existing literature by expanding and testing the EDM. Prior studies have tested only the basic model of prior expectation, post-experience, disconfirmation, and satisfaction; important antecedents of expectation or actual performance, which may influence the whole EDM, were not included. This study argues that the disaster management EDM may be influenced by performance management systems. In the expanded model, the study includes environmental and organizational factors affecting performance management. The potential influence of various environmental, organizational, and managerial factors on the effectiveness of performance management has

been posited by previous studies (DeNisi & Pritchard, 2006; De Waal, 2003; Franco & Bourne, 2003; Frye et al., 2009; Wang & Berman, 2001).

This paper is structured as follows. First, the paper explains the EDM and the existing literature in the public sector, makes a case regarding employee satisfaction and discusses the relevance of expanding the model to include performance management effectiveness as it is applied to local government units. Subsequently, the paper describes the data used, methods, and findings of the study. Finally, the practical and theoretical implications of the findings are discussed.

## Literature Review

### *Relating Employee Satisfaction and Citizen Satisfaction in the EDM*

Traditionally, the EDM was used to explore consumer or citizen satisfaction judgments of services from the private (McKinney et al., 2000; Oliver, 1977, 1980; Tse & Wilton, 1988) and public sectors (James, 2009; Poister & Thomas, 2011; Van Ryzin, 2004, 2005, 2007). However, there has been limited research to determine employee satisfaction judgments of various organizational and managerial processes and the subsequent output of government services. The EDM presents a dynamic relationship between prior expectations of products (goods or services), post (actual) experiences, positive or negative disconfirmation (the gap between prior expectations and the actual delivery of products), and the resulting satisfaction with the products. The present study asserts that employees' satisfaction with their job and the services it renders is relevant in the EDM. First, public sectors in various countries have employed citizen satisfaction surveys to measure government performance (Bouckaert et al., 2005). However, some scholars argue that citizen surveys may not reflect the actual quality of government services (Bouckaert & van de Walle, 2003) and thus may not capture true government performance.

Scant EDM literature shows the relationship of expectations, fulfillment, and employee satisfaction, save for a study by Spector (1956) that examined the relationship between promotion expectation and job satisfaction among employees in military agencies. Measurement of employee satisfaction as a determinant

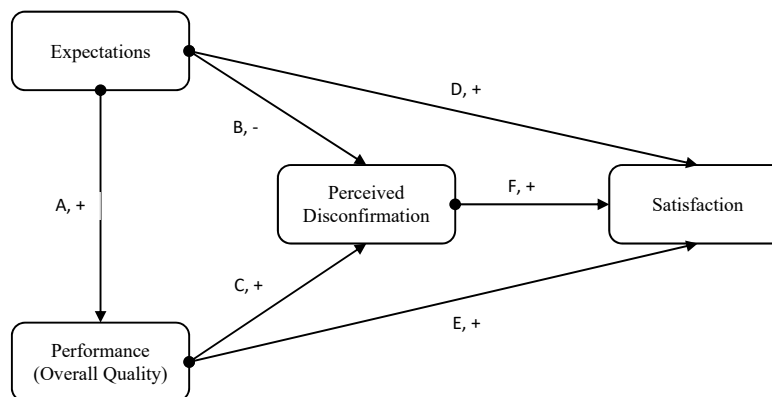
of customer satisfaction (Hartline et al., 2000; Ennew et al., 2013) may provide researchers and practitioners with an understanding of how civil servants form satisfaction judgments about the overall quality of public sector performance. One may argue that when employees are satisfied with their job and services rendered, citizen satisfaction may follow. Notably, employee satisfaction and citizen satisfaction are different. Employee satisfaction is a unidimensional construct whereby employees are either satisfied or not satisfied with their job (Rydberg et al., 2010). It is based on the characteristics of the work and the working environment, in which employees either do or do not feel rewarded, satisfied, and fulfilled by their job. In contrast, citizen satisfaction is a perception of the extent to which citizens' expectations and experiences, or their demands and desires for public services, are achieved (Lee & Lee, 2006).

Employee satisfaction and citizen satisfaction may have a direct relationship or an indirect association via various factors. Prior studies have found a direct link between employee job satisfaction and citizen satisfaction in various contexts. For example, Vilares and Coelho (2003) found that perceived employee satisfaction affected supermarket customer satisfaction; Harter et al. (2002), employing 7,939 business units and 36 companies, found a generalizable relationship between employee satisfaction and customer satisfaction. Citizen satisfaction and customer satisfaction are similar in expectancy disconfirmation, which plays a critical role in describing and evaluating both citizen and customer satisfaction (Kampen et al., 2006; Van Ryzin, 2004). Other studies have also provided evidence of a strong

linkage between employee satisfaction and customer satisfaction (Karl & Peluchette, 2006; Bernhardt et al., 2000). Indirectly, employee job satisfaction may predict citizen satisfaction, for instance, by indicating high organizational performance and service quality. One may also presume that the antecedent role of employee job satisfaction in enhancing various outcome variables (e.g., organizational effectiveness, performance, service quality, etc.) may predict citizen satisfaction. Previous studies also argue that employee job satisfaction is an important determinant of work behavior and attitude (Clark & Oswald, 1996), which may, directly and indirectly, relate with organizational effectiveness (Pantouvakis & Bouranta, 2013). Job satisfaction has a positive influence or impact on performance outcomes, including service quality.

### *The Expectancy-Disconfirmation Model*

A vast body of literature explicates the link between performance expectations, the quality of actual performance, disconfirmation of expectations, and satisfaction with various experiences of private goods and services (see, for example, Anderson & Sullivan, 1993; Campbell et al., 1976; Oliver, 1980, 1997; Spector, 1956). The EDM argues that prior expectations of the characteristics of goods or services may help in forming consumers' satisfaction judgments (Oliver, 1980). Subsequently, consumer satisfaction can be formed using prior expectations as a comparative referent against the consumer's actual experience of the goods or services (Oliver, 1997). Figure 1 shows the most popular variant of the EDM (Note: The +/- signs show the hypothesized relationship between the variables in the EDM).



**Figure 1.** Expectancy-Disconfirmation Model

The main conceptualization of expectancy-disconfirmation theory tries to explain the role of prior expectations in a rational process through which satisfaction judgments are formed regarding a subsequent experience. The EDM has been applied in various contexts in business (customer satisfaction) and the public sector (citizen satisfaction with government services; see for example Van Ryzin, 2004); promotion within ranks and job satisfaction (Spector, 1956). Van Ryzin (2013) posited that “expectancy-disconfirmation theory has relevance for research about public services as well as public management strategy and practice” (p. 599). The theory can explain the validity of subjective government performance measurements, as well as the citizens’ subjective evaluation vis-à-vis objective performance measurements (Van Ryzin, 2013).

In Figure 1, the EDM hypothesizes in path “A” (link A; expectation → performance) that prior expectations will positively influence post experiences of performance. The model posits that such expectations are formed by word of mouth, advertisements, the media, personal experience, or other means. Thus, consumers will make a rational judgment of what actual goods to expect and their quality. There should be a small gap between expectation and actual performance: when expectations are high, performance should be highly perceived. Applied in the context of disaster management systems, employees’ expectations of performance will depend on prior experiences and the existing disaster management plans in place for implementation. Employees may formulate a rational judgment of how they will perceive actual performance based on various available inputs (e.g., budget, human resources, policy, etc.) in light of their performance expectations.

The EDM hypothesizes in path “B” (link B; expectation → disconfirmation) a negative link between expectation and perceived disconfirmation. Expectations can be high, average, or low; those with high expectations likely have a high chance of negative disconfirmation, and those with low expectations have a high chance of positive disconfirmation. Individuals with average expectations likely have their expectations confirmed. The present study adopts the same logic in the case of employee expectations of disaster management system implementation.

In path “C” (link C; performance → disconfirmation), the EDM hypothesizes that perceived performance

positively affects disconfirmation of expectations. This suggests that high perceived performance results in positive disconfirmation of expectations, whereas low perceived performance results in negative disconfirmation of expectations.

In path “F” (link F; disconfirmation → satisfaction), the EDM hypothesizes that positive disconfirmation of expectations (high expectations) will result in high satisfaction (this also applies when disconfirmation of expectations is negative). To predict satisfaction, path “D” (link D; expectation → satisfaction) of the EDM hypothesizes that when prior expectations are high, high satisfaction will follow. However, this relation is less intuitive (Van Ryzin, 2013) and refers only to the direct relation of expectation → satisfaction, separate from the disconfirmation effect. In the same vein, path “E” (link E; performance → satisfaction) of the EDM hypothesizes that good/high performance directly affects satisfaction independent of its effect on disconfirmation. This relation (performance → satisfaction) is more instinctive and matters more than prior expectations and disconfirmation when examining effects on satisfaction.

There is growing interest in examining the applicability of the EDM to government services, and exploring service providers’ expectations and disconfirmation could provide a wider range of practical and theoretical implications in the field of public management. Whereas previous studies on the EDM focused on citizen satisfaction with government services, the present study explores how employees in local government perceive the quality of disaster management programs and services, the employees’ expectations of those services, and their satisfaction with the delivered output.

### ***Expanded EDM with Performance Management System Effectiveness***

The literature on performance management in local government offers vast resources on measuring performance (see, for example, Boyne, 2002), as this has been the governments’ primary concern (Gould-Williams, 2003). Governments must determine the quality of performance based on various yardsticks for their functions or services and examine the efficiency and output of this performance (Hatry, 2002; Ingraham, 2005; Metzenbaum, 2006; Piotrowski & Rosenbloom, 2002). Studies have advanced beyond output measures into enhancing the effectiveness and efficiency of



performance management (Ammons & Rivenbark, 2008). Drawing on the EDM with performance, the present study expands the model by appending performance management system effectiveness (PMSE) as a predictor of employees' prior expectations and actual (quality of) performance. Specifically, the study hypothesizes that prior expectations and perceived performance can be formulated based on the effectiveness of the performance management system.

The appended PMSE model includes important factors that may influence performance management, consisting of external (political support, stakeholder participation), internal (organizational support), and process (performance management adoption) factors. Yang and Hsieh (2007) found that political support may indirectly affect performance management effectiveness, whereas stakeholder participation, organizational support, and performance management adoption have significant positive effects on performance management effectiveness.

## Data and Methods

### *Sample and Procedure*

The data used to test disaster management expectancy-disconfirmation and its expanded model, including PMSE, were collected as part of the 2018 annual Seal of Good Local Governance (SGLG) evaluation in the Cagayan Valley region. The survey was administered by the Department of Interior and Local Government (Cagayan Valley; DILG-CV), involving municipal and city DRRM officers in the 98 municipalities and cities in the region. The survey focused on the municipal and city DRRM offices because, among all areas of governance, disaster preparedness ranked lowest in the assessment from 2014 to 2016 (Anog et al., 2018). The DILG-CV thus sought to identify important factors that may help

enhance disaster management performance. The DILG-CV addressed a letter to municipal and city DRRM officers asking them to respond to the online survey to encourage participation. The URL link to the online survey was sent via email and Facebook messenger, and DRRM officers were given from April 12, 2018 to June 12, 2018 (the final day of SGLG document submission in the Cagayan Valley, Philippines) to complete the survey. Prior studies utilizing the online survey technique have been published in prominent journals, for example, the *American Review of Public Administration*, *Journal of Leadership and Organizational Studies*, and others (see Barnes et al., 2011; Caillier, 2015; Piccolo & Colquitt, 2006; Resick et al., 2013; Zhu et al., 2011). To minimize potential social desirability issues, an orientation for local government operations officers was conducted, and a separate email was sent to DRRM officers explaining the survey, the confidentiality of responses, the usage of the survey results (i.e., research purposes only), and the importance of responding honestly to every survey question (Podsakoff et al., 2003).

In total, 267 DRRM officers participated in the online survey. However, some cases were excluded due to unengaged responses (i.e., outliers; unengaged responses were excluded because identical response entries for every survey item may pull the mean away from the median). After exclusion of unengaged responses, the survey obtained a total of 244 (91.4%) usable samples for analysis. Among the respondents, approximately 70.1% were male, mean age was 29.2, mean length of service was 5.6 years, 62.7% had a bachelor's degree, and 56.6% were permanent municipal employees. Table 1 shows the characteristics of the sample. Tables 2 and 3 present the survey items used to operationalize the variables in the EDM and the expanded version of the EDM with PMSE. Table 4 summarizes the descriptive statistics of the variables.

**Table 1***Sample Characteristics (n = 244)*

Variable	Category	n (%)
Sex	Male	171 (70.1)
	Female	73 (29.9)
Age (years)	20–29	70 (28.7)
	30–39	67 (27.5)
	40–49	67 (27.5)
	50–59	35 (14.3)
	60 or older	5 (2.0)
	Educational attainment	High School or less
	College (2–3 years)	53 (21.7)
	Bachelor's degree	153 (62.7)
	Master's degree	20 (8.2)
	Doctorate	2 (0.8)
	Post-baccalaureate	5 (2.0)
Length of service (years)	1 month–3	120 (49.2)
	3–5	55 (22.5)
	5–10	21 (8.6)
	10–15	12 (4.9)
	More than 15	36 (14.8)
	Employment status	Permanent
Co-terminus		5 (2.0)
Casual		30 (12.3)
Job order		71 (29.1)

**Table 2***Items for the Disaster Management Expectation-Disconfirmation Model*

Variable	Survey item(s)
Expectations	Thinking back a few years, how would you rate your EXPECTATIONS of the overall quality of the disaster management system in your local government unit?
Actual Performance	Think about today, how would you rate the following disaster management areas? Disaster Prevention and Mitigation Disaster Preparedness Disaster Response Disaster Rehabilitation and Recovery
Disconfirmation	Considering all of your EXPECTATIONS, to what extent have the disaster management system in your local government unit fallen short of your expectations or exceeded your expectations?
Satisfaction	Satisfaction means many things. Overall, how SATISFIED are you with the disaster management system in your local government unit?

**Table 3***Items for the Expanded Disaster Management Expectation-Disconfirmation Model*

Variables	Items
Performance management effectiveness	The performance reviews motivate me.
	The performance reviews cause me to function better.
	The performance reviews enhanced my self-esteem.
	The performance reviews contribute to my professional development.
	The performance reviews provide me with more insights into my personal contributions and added value.
	The performance reviews have a clear effect on how comfortable I feel in my job.
Performance management adoption	The performance reviews have a clear effect on my performance.
	This organization uses output indicators to measure performance on disaster management.
	This organization uses outcome indicators to measure performance on disaster management.
	This organization uses satisfaction indicators to measure performance on disaster management.
Stakeholder Participation	The performance reviews provide me with clear insight into my career opportunities.
	Citizens participate in designing this organization's disaster management performance indicator.
	Citizens help this organization evaluate disaster management performance.
Organizational Support	Stakeholders are familiar with the results of this organization's performance on disaster management.
	Top leaders emphasize and care about the process of managing the performance of disaster management.
	Top leaders value and treat the results of managing the performance of disaster management seriously.
External Political Support	All offices and leaders actively support managing the performance of disaster management.
	Elected officials of the local government unit support the department head's autonomy in managing disaster management performance.
	Compared with other local government units, this organization enjoys a high level of authority on disaster management.
	Elected officials always support the policy formulation and adoption of disaster response management from this organization.

**Table 4***Descriptive Statistics (n = 244)*

	Minimum	Maximum	Mean	SD
Expectations	1	7	5.43	1.18
Actual DRRM performance	1	4	3.31	0.49
Disconfirmation	1	7	5.54	0.90
Satisfaction	1	7	5.80	0.88
Performance management effectiveness	1	7	6.15	0.85
Performance management adoption	1	7	5.93	0.90
Stakeholder Participation	1	7	5.75	0.94
Organizational Support	1	7	6.10	0.89
External Political Support	1	7	6.03	0.83



## Method

The basic EDM and expanded EDM with performance management were tested utilizing the expectation maximization (EM) and estimate structural equation models. Missing values of the raw data were analyzed with the EM method because of its capability to retain data as possible. The EM approach is an iterative method—uses other variables to impute a value and accordingly verifies that value if it is the most likely through the iteration of the E (expectation) step and M (maximization) step (Dempster et al., 1977; Dong & Peng, 2013). The imputed values, therefore, were used to estimate the structural equation model. Previous studies employed full information maximum likelihood (FIML) estimation when applying EDM (Van Ryzin, 2004, 2006; Morgeson, 2012). However, it is argued that the results from FIML and EM are similar. Last, the study employed a bootstrapping mediation analysis to determine the total indirect effects of external politics support, organizational support, and stakeholder participation on performance management system effectiveness through performance measurement adoption. Table 5 presents the bivariate correlations matrices for all the variables in the expanded disaster management expectation-disconfirmation model.

## Results

### *EDM of DRRM Performance*

Testing the applicability of EDM in the context of local disaster management focusing on the employee perspective, the fit statistics revealed an acceptable CMIN/Df of 3.34, excellent TLI of .95, excellent CFI of .98, excellent SRMR of .03, acceptable RMSEA of .07, and acceptable PClose at .01, indicating an adequate fit to the data. Taken together, the results largely support the application of EDM to the areas of services included in the local disaster management that focus on employee perspective. Figure 2 shows the estimated parameters of the structural model, including the standardized direct effects, the significance of the coefficients, and the squared multiple correlations for every dependent variable in the model.

Specifically, the parameter estimate showing the relationship between expectation and perceived DRRM performance ( $B = .50, p < .001$ ) is significant

and positive. The relationship between expectations and perceived disconfirmation ( $B = .30, p < .001$ ) is positive and significant, different from what EDM had hypothesized. On the other hand, the relationship between actual performance and perceived disconfirmation ( $B = .49, p < .001$ ) is very strong, positive, and significant.

Lastly, looking at the parameter estimates towards satisfaction, the expectation has a small, positive, and significant effect on satisfaction ( $B = .11, p < .05$ ). This finding also confirmed the results of previous studies. For example, in Morgeson (2012), he found that expectation fairly affects satisfaction at  $B = .08, p < .001$ . Perceived disconfirmation also has a positive and significant impact on satisfaction ( $B = .56, p < .001$ ). Meaning, when the actual performance exceeds the prior expectations of the employees, the more they are satisfied with the output of the programs or services. Finally, as hypothesized in the EDM, the relationship between actual performance and satisfaction ( $B = .34, p < .001$ ) is positive and significant. This indicates that the higher performance or perceived quality, the higher the satisfaction.

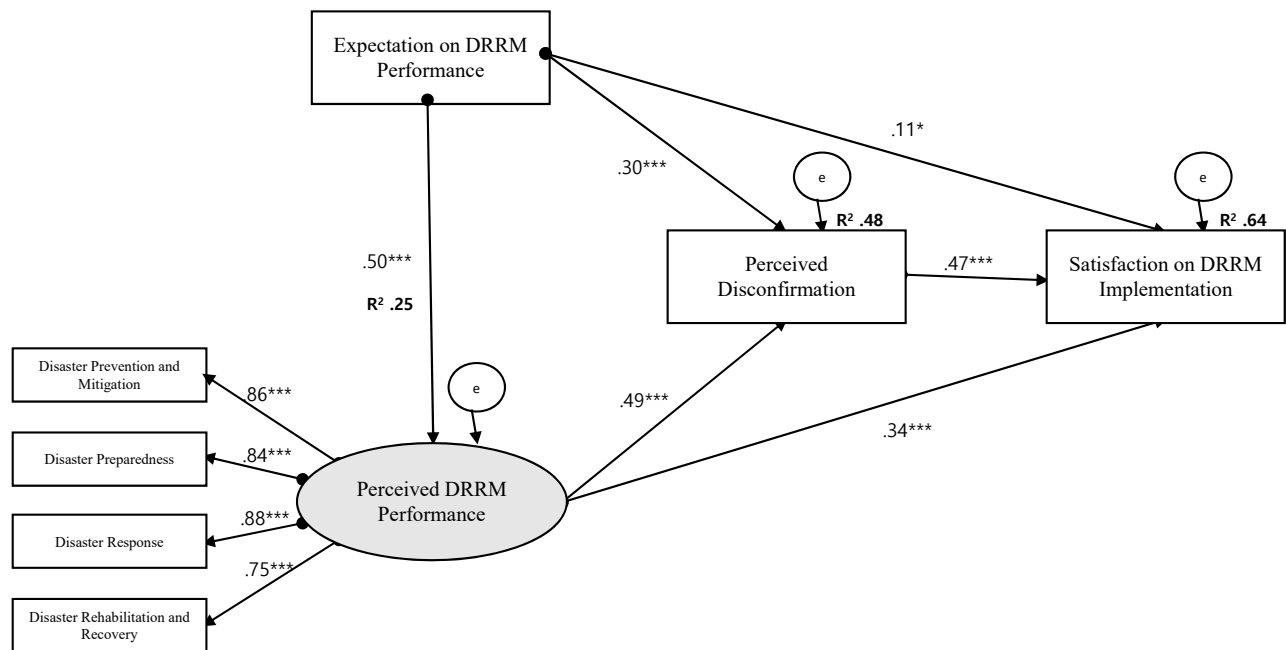
### *Expanded EDM of DRRM Performance with PMSE*

The study also tests an expanded version of the EDM of disaster management, arguing that performance management effectiveness may influence the prior expectations and perceived actual performance. The results of the structural equation model are presented in Figure 3. The fit statistics revealed an excellent CMIN/Df of 2.34, acceptable TLI of .93, acceptable CFI of .94, acceptable SRMR of .09, and acceptable RMSEA of .07, indicating an adequate fit to the data. The relationship of variables in the original EDM remains the same, although there are fairly small differences when tested without the added variables. Focusing on the results of the appended variables, first, regarding the relationship of performance management effectiveness and prior expectation, the results show a strong, positive, and significant effect ( $B = .44, p < .001$ ). The findings also show that performance management effectiveness explains 19% of the variance in the employee's prior expectations on DRRM performance. The results suggest that performance management effectiveness in the local government (e.g., planning and commitment, monitoring and coaching, review and evaluation, and rewarding and development planning)

**Table 5**  
*Bivariate Correlations of Variables*

	A	B	C	D	E	F	G	H	I
Expectations (A)	1								
DRRM Performance (B)	.469**	1							
Disconfirmation (C)	.543**	.610**	1						
Satisfaction (D)	.530**	.664**	.743**	1					
PM Effectiveness (E)	.412**	.434**	.444**	.436**	1				
External political support (F)	.466**	.491**	.512**	.485**	.657**	1			
Organizational support (G)	.482**	.493**	.518**	.509**	.674**	.782**	1		
Stakeholder support (H)	.496**	.496**	.560**	.537**	.622**	.743**	.790**	1	
PM adoption (I)	.481**	.530**	.591**	.535**	.694**	.757**	.737**	.796**	1

\*\* Correlation is significant at the 0.01 level (2-tailed).



Model fit: DF = 11 ( $p < 0.001$ ), CMIN/DF = 3.335, TLI = .95, CFI = .98, SRMR = .03, RMSEA = .07, PClose = .012  
 \* =  $p < .05$ , \*\*  $p < .01$ , \*\*\*  $p < .001$

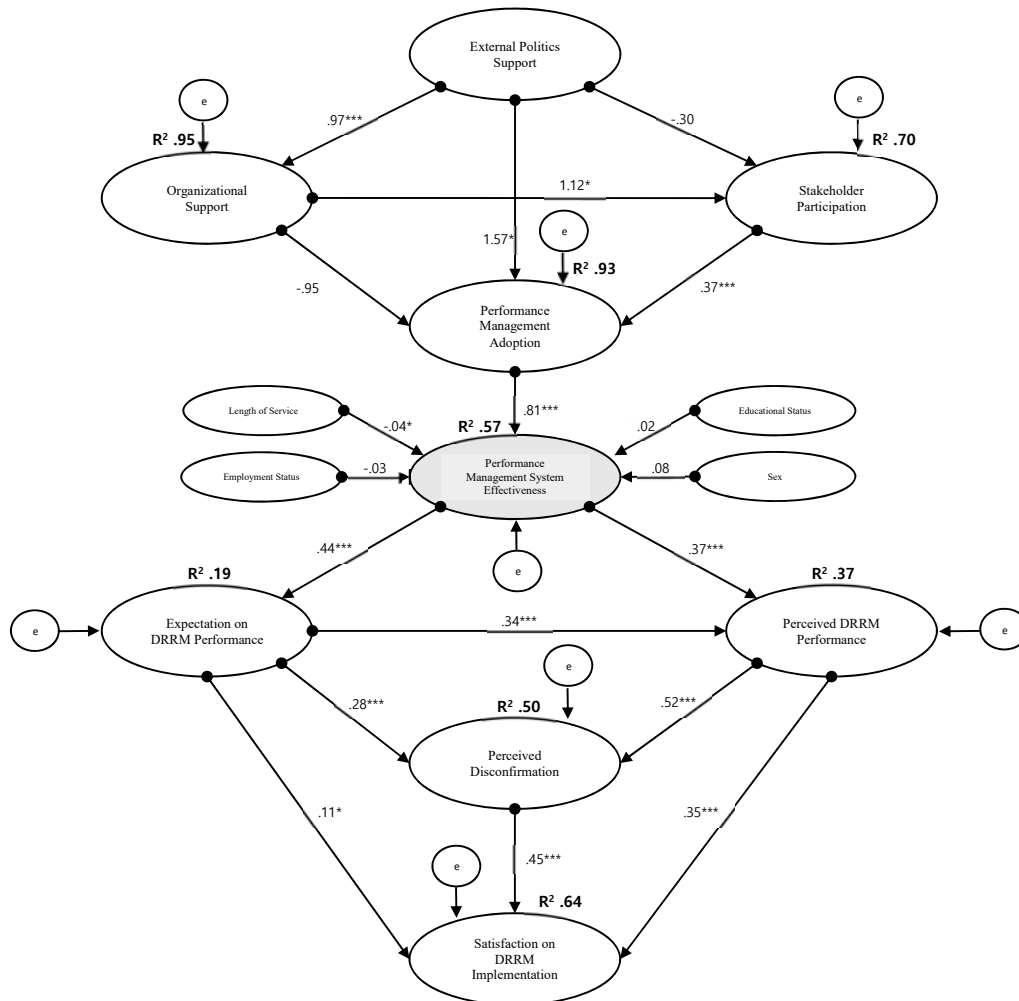
**Figure 2.** Local Disaster Management Expectancy-Disconfirmation Model

strongly influence the employee’s prior expectation of DRRM performance.

Second, the findings revealed that performance management effectiveness strongly, significantly, and positively influences the perceived actual performance (or perceived quality) of DRRM ( $B = .37, p < .001$ ). Thirty-seven percent of the variance in the actual DRRM performance is explained by performance management effectiveness.

Last, focusing on the results taken from the antecedents of performance management effectiveness appended to the EDM, performance measurement adoption strongly, positively, and significantly affects performance management effectiveness ( $B = .81,$

$p < .001$ ). The findings reveal that the total indirect effect of external politics supports on performance management effectiveness was significant,  $b = .39,$  BCa CI [.28, .49], which represents 33% ( $k^2 = .33,$  95% BCa CI [.23, .43]) of all possible accounted effects. The indirect effect of stakeholder’s support was significant,  $b = .31,$  BCa CI [.23, .40], which represents 45% ( $k^2 = .45,$  95% BCa CI [.38, .52]) of all effects. Also, the organizational support has a significant and positive indirect effect on performance management effectiveness,  $b = .33,$  BCa CI [.23, .43], which represents 23% ( $k^2 = .23,$  95% BCa CI [.38, .52]) of all included effects in the model.



Model fit: DF = 413, CMIN/df = 2.34 (excellent), CFI = .94 (acceptable), SRMR = .09 (acceptable) and RMSEA = .07 (Acceptable); \* $p < .05$ ; \*\* $p < .01$ ; \*\*\* $p < .001$

Figure 3. EDM With Antecedents of Expectations and Actual Performance

## Discussion and Conclusion

The extant research examined the application of EDM in the context of local government disaster and performance management. This study used a sample of 244 local disaster management officers in the Cagayan Valley, Philippines, and analyzed the relationships between performance expectation, actual performance, disconfirmation, and satisfaction, and the expanded model with PMSE, which include antecedent factors (i.e., external politics, stakeholder support, organizational support, and performance management adoption factors). Two SEM was developed (i.e., EDM, expanded EDM) that follows an antecedent-mediator-outcome model of PMSE determinants, PMSE, and EDM of DRRM performance.

As expected, the model confirmed all the assumptions made in the study and supported the previous findings on the direct relationships of each of the variables in the EDM. Results of the study support the findings of prior EDM studies testing on the effect of expectation on the actual performance of federal and local government services (Van Ryzin, 2006; Morgeson, 2012). In the study of Morgeson (2012), the standardized coefficient describing the relationship expectations and perceived disconfirmation was positive, which is similar to the result derived from the extant study. These results are different from the assumption of EDM, which presents a negative relationship between expectations and disconfirmation. Morgeson argued that the unexpected and divergent results from the theory have a logical and reasonable explanation in the field of public administration. The positive relationship between expectation and perceived disconfirmation could be explained by the fact that citizens may have unrealistic negative expectations towards government services; however, their actual experience of the services may exceed expectations. In the case of disaster management performance, it is likely explained by the fact that employees may have a subjective and depressed expectation on the capacity of the government to perform due to various issues such as bureaucratic process, red tape, organizational politics, corruption, and among others.

In the expanded EDM, the results indicate that performance management effectiveness could influence employees' perception of the quality and actual performance. Prior studies found that

performance management effectiveness affects organizational performance (Delaney & Huselid, 1996; Paul & Anantharaman, 2003; Aguinis & Pierce, 2008). When employees perceive an effective performance management process focusing on a particular program (for example, the DRRM), the performance quality may be high. Also, prior studies argue that the effectiveness of performance management can be predicted through the adoption of performance measurements (Julnes & Holzer, 2001; Yang & Hsieh, 2007).

### *Theoretical Implications*

Testing against the original EDM, the results reveal that the expanded model functions well in light of local government employees' perception of disaster management performance. The parameter estimates obtained in the extant study were very similar to the findings of prior studies on the EDM (Morgeson, 2012; Van Ryzin, 2004, 2005, 2007). As this study argues, the EDM is not an exclusive model of measuring satisfaction on services or products either by the government or business sector. It applies to government service providers, which could even be an effective mechanism for predicating citizen satisfaction. There are more efforts for the government to increase citizens' satisfaction. One way is through employees in the public sector who clearly perceive outcomes through various endogenous variables affecting the quality of the output or service to the people. These endogenous factors need to be understood to improve service production and delivery to the people.

The expanded EDM with PMSE and antecedent variables shows promising results that predict employees' prior expectations and actual (quality of) disaster management performance. The results of the basic model remain the same. As the results suggest, a strong relationship exists between the PMSE and prior expectation, as well as the PMSE and perceived quality of performance. Thus, these results provide strong evidence to help illuminate the cognitive processes by which employees form satisfaction judgments of disaster management in the local government. The results of the present study may provide important implications regarding measures for public managers to adopt to improve the work system, for example, in disaster management that may enhance employees' work satisfaction.

### **Practical Implications**

Testing the expanded version of the EDM with PMSE in relation to disaster management and focusing on employees' perception in the local government also provides important practical implications. The notion of performance management for public managers highlights the need to activate and effectively implement cyclical performance management processes, which may include formulation of objectives, generation of performance information, and use of this information for decision-making (Anderson, 2008; Moynihan, 2008).

Understanding the performance expectancy and disconfirmation on disaster management is essential for the local government. The performance information is not only about the performance satisfaction of the employees on the disaster management but also a measurement of how the citizens may perceive the performance of the government. The overall satisfaction of the citizens will depend on how they perceive the performance of the employees in the government. Taken together, the public sector organizations or a local government may employ strategies that may predict a high expectation and perceived actual performance. As in the findings of the study, the PMSE provides a positive and significant both to the expectation and actual performance of disaster management. There is now evidence that could explain the role of performance management system effectiveness in determining the satisfaction of the employees on their particular job or task.

### **Limitations and Suggestions for Future Research**

Although these findings provide straightforward and important implications for public sector organizations, the results must be interpreted with caution and discussed within the boundaries of the limitations of the study, which reveal a clear need for further research. The study design was cross-sectional, which has the possibility of providing speculative causal relationships or a sense of reverse causality. Future studies may employ objective, longitudinal, and multi-source data that might reduce subjective interpretations of the results. Future research may examine dominant factors that may influence the relationship between performance expectation and actual expectation through a quasi-experimental or experimental design. Also, a study comparing the expectation, actual performance quality, disconfirmation, and satisfaction

among government employees (or implementers) and citizens may give us a wide range of implications, theoretically and practically. As this paper argued, the satisfaction of disaster risk management by the implementers is a conditional element to predict citizen satisfaction with the services rendered by the government.

The data were additionally prone to common method or social desirability biases, which might lead to an inflation of observed correlations or relationships. However, the data collection method may have minimized social desirability issues (Podsakoff et al., 2003). Research also argues that the consequences of common method bias are exaggerated (Spector, 2006).

### **Declaration of ownership**

This report is my original work.

### **Conflict of interest**

None.

### **Ethical clearance**

This study was approved by the institution.

### **References**

- Aguinis, H. (2009). *Performance management*. Pearson Prentice Hall.
- Aguinis, H., & Pierce, C. A. (2008). Enhancing the relevance of organizational behavior by embracing performance management research. *Journal of Organizational Behavior*, 29(1), 139–145. <https://doi.org/10.1002/job.493>
- Ammons, D. N., & Rivenbark, W. C. (2008). Factors influencing the use of performance data to improve municipal services: Evidence from the North Carolina benchmarking project. *Public Administration Review*, 68(2), 304–318. <https://doi.org/10.1111/j.1540-6210.2007.00864.x>
- Anderson, E. W., & Sullivan, M. W. (1993). The antecedents and consequences of customer satisfaction for firms. *Marketing Science*, 12(2), 125–143. <https://doi.org/10.1287/mksc.12.2.125>
- Anderson, M. H. (2008). Social networks and the cognitive motivation to realize network opportunities: A study of managers' information gathering behaviors. *Journal of Organizational Behavior*, 29(1), 51–78. <https://doi.org/10.1002/job.459>



- Anog, M. E., Vidad, K. A., & Castro, R. M. (April 12, 2018). SGLG: The blueprint in defining and directing DILG R2's PPA implementation and service delivery; A 3-year trend analysis report based on the SGLG governance assessment report (GAR). *Proceedings from International Conference of the International Association of Public Human Resource Development*. Publisher.
- Barnes, C. M., Schaubroeck, J., Huth, M., & Ghumman, S. (2011). Lack of sleep and unethical conduct. *Organizational Behavior and Human Decision Processes*, 115(2), 169–180. <https://doi.org/10.1016/j.obhdp.2011.01.009>
- Behn, R. D. (2002). The psychological barriers to performance management: Or why isn't everyone jumping on the performance-management bandwagon? *Public Performance & Management Review*, 26(1), 5–25. <https://doi.org/10.1080/15309576.2002.11643684>
- Bento, A., & White, L. F. (2006). Budgeting, performance evaluation, and compensation: A performance management model. In A. Editor & B. Editor (Eds.), *Advances in management accounting* (pp. 51–79). Emerald Group Publishing Limited. [https://doi.org/10.1016/S1474-7871\(06\)15003-0](https://doi.org/10.1016/S1474-7871(06)15003-0)
- Bernhardt, K. L., Donthu, N., & Kennett, P. A. (2000). A longitudinal analysis of satisfaction and profitability. *Journal of Business Research*, 47(2), 161–171. [https://doi.org/10.1016/S0148-2963\(98\)00042-3](https://doi.org/10.1016/S0148-2963(98)00042-3)
- Biron, M., Farndale, E., & Paauwe, J. (2011). Performance management effectiveness: Lessons from world-leading firms. *The International Journal of Human Resource Management*, 22(06), 1294–1311. <https://doi.org/10.1080/09585192.2011.559100>
- Boin, A., Hart, P., Stern, E., & Sundelius, B. (2006). *The politics of crisis management. Public leadership under pressure*. Cambridge University Press.
- Caillier, J. G. (2015). Transformational leadership and whistle-blowing attitudes: Is this relationship mediated by organizational commitment and public service motivation? *The American Review of Public Administration*, 45(4), 458–475. <https://doi.org/10.1177/0275074013515299>
- Campbell, A., Converse, P. E., & Rodgers, W. L. (1976). *The quality of American life: Perceptions, evaluations, and satisfactions*. Russell Sage Foundation.
- Clark, A., Oswald, A., & Warr, P. (1996). Is job satisfaction U-shaped in age? *Journal of Occupational and Organizational Psychology*, 69(1), 57–81. <https://doi.org/10.1111/j.2044-8325.1996.tb00600.x>
- De Waal, A. A. (2003). Behavioral factors important for the successful implementation and use of performance management systems. *Management Decision*, 41(8), 688–697. <https://doi.org/10.1108/00251740310496206>
- Delaney, J. T., & Huselid, M. A. (1996). The impact of human resource management practices on perceptions of organizational performance. *Academy of Management Journal*, 39(4), 949–969. <https://doi.org/10.5465/256718>
- Dempster, A. P., Laird, N. M., & Rubin, D. B. (1977). Maximum likelihood from incomplete data via the EM algorithm. *Journal of the Royal Statistical Society: Series B (Methodological)*, 39(1), 1–38. <https://doi.org/10.1111/j.2517-6161.1977.tb01600.x>
- DeNisi, A. S., & Pritchard, R. D. (2006). Performance appraisal, performance management and improving individual performance: A motivational framework. *Management and Organization Review*, 2(2), 253–277. <https://doi.org/10.1111/j.1740-8784.2006.00042.x>
- Dong, Y., & Peng, C. Y. J. (2013). Principled missing data methods for researchers. *Springer Plus*, 2(1). <https://doi.org/10.1186/2193-1801-2-222>
- Ennew, C., Waite, N., & Waite, R. (2013). *Financial services marketing: An international guide to principles and practice*. Routledge.
- Franco, M., & Bourne, M. (2003). Factors that play a role in “managing through measures.” *Management Decision*, 41(8), 698–710. <https://doi.org/10.1108/00251740310496215>
- Fryer, K., Antony, J., & Ogden, S. (2009). Performance management in the public sector. *International Journal of Public Sector Management*, 22(6), 478–498. <https://doi.org/10.1108/09513550910982850>
- Gould-Williams, J. (2003). The importance of HR practices and workplace trust in achieving superior performance: A study of public-sector organizations. *International Journal of Human Resource Management*, 14(1), 28–54. <https://doi.org/10.1080/09585190210158501>
- Harter, J. K., Schmidt, F. L., & Hayes, T. L. (2002). Business-unit-level relationship between employee satisfaction, employee engagement, and business outcomes: A meta-analysis. *Journal of Applied Psychology*, 87(2), 268–279. <https://doi.org/10.1037//0021-9010.87.2.268>
- Hartline, M. D., Maxham, J. G., III, & McKee, D. O. (2000). Corridors of influence in the dissemination of customer-oriented strategy to customer contact service employees. *Journal of Marketing*, 64(2), 35–50. <https://doi.org/10.1509/jmkg.64.2.35.18001>
- Hatry, H. P. (2002). Performance measurement: Fashions and fallacies. *Public Performance & Management Review*, 25(4), 352–358. <https://doi.org/10.1080/15309576.2002.11643671>
- Henstra, D. (2010). Evaluating local government emergency management programs: What framework should public managers adopt? *Public Administration Review*, 70(2), 236–246. <https://doi.org/10.1111/j.1540-6210.2010.02130.x>

- Holzer, M., & Yang, K. (2004). Performance measurement and improvement: An assessment of the state of the art. *International Review of Administrative Sciences*, 70(1), 15–31. <https://doi.org/10.1177/0020852304041228>
- Ingraham, P. W. (2005). Performance: Promises to keep and miles to go. *Public Administration Review*, 65(4), 390–395. <https://doi.org/10.1111/j.1540-6210.2005.00466.x>
- James, O. (2009). Evaluating the expectations disconfirmation and expectations anchoring approaches to citizen satisfaction with local public services. *Journal of Public Administration Research and Theory*, 19(1), 107–123. <https://doi.org/10.1093/jopart/mum034>
- Vilares, M. J., & Coelho, P. S. (2003). The employee-customer satisfaction chain in the ECSI model. *European Journal of Marketing*, 37(11/12), 1703–1722. <https://doi.org/10.1108/03090560310495429>
- Julnes, P. D. L., & Holzer, M. (2001). Promoting the utilization of performance measures in public organizations: An empirical study of factors affecting adoption and implementation. *Public Administration Review*, 61(6), 693–708. <https://doi.org/10.1111/0033-3352.00140>
- Kampen, J. K., De Walle, S. V., & Bouckaert, G. (2006). Assessing the relation between satisfaction with public service delivery and trust in government. The impact of the predisposition of citizens toward government on evaluations of its performance. *Public Performance & Management Review*, 29(4), 387–404. <https://doi.org/10.1080/15309576.2006.11051881>
- Karl, K., & Peluchette, J. (2006). How does workplace fun impact employee perceptions of customer service quality? *Journal of Leadership & Organizational Studies*, 13(2), 2–13. <https://doi.org/10.1177/10717919070130020201>
- Kusumasari, B., Alam, Q., & Siddiqui, K. (2010). Resource capability for local government in managing disaster. *Disaster Prevention and Management: An International Journal*, 19(4), 438–451. <https://doi.org/10.1108/09653561011070367>
- Lawler, E. E., III. (2003). Reward practices and performance management system effectiveness. *Organizational Dynamics*, 32(4), 396–404.
- Lee, J. H., & Lee, S. K. (2006). The review of measuring method of the citizen satisfaction in the local government administrative service: Focus on measuring index composition and importance. *Journal of Korean Association for Public Management*, 20(1), 99–117.
- McEntire, D. A., & Dawson, G. (2007). The intergovernmental context. In W. L. Waugh, Jr., & K. Tierney (Eds.), *Emergency management: Principles and practice for local government* (2nd ed.; pp. 57–70). International City/County Management Association.
- McKinney, V., Yoon, K., & Zahedi, F. M. (2002). The measurement of web-customer satisfaction: An expectation and disconfirmation approach. *Information Systems Research*, 13(3), 296–315. <https://doi.org/10.1287/isre.13.3.296.76>
- Metzenbaum, S. H. (2006). *Performance accountability: The five building blocks and six essential practices*. IBM Center for the Business of Government.
- Moynihan, D. P. (2008). *The dynamics of performance management: Constructing information and reform*. Georgetown University Press.
- Newkirk, R. T. (2001). The increasing cost of disasters in developed countries: A challenge to local planning and government. *Journal of Contingencies and Crisis Management*, 9(3), 159–170. <https://doi.org/10.1111/1468-5973.00165>
- Norman, S., & Coles, E. (2003). Order out of chaos? A critical review of the role of central, regional, and local government in emergency planning in London. *Australian Journal of Emergency Management*, 18(2), 98–107.
- O'Brien, G., & Read, P. (2005). Future UK emergency management: New wine, old skin? *Disaster Prevention and Management*, 14(3), 353–361. <https://doi.org/10.1108/09653560510605018>
- Oliver, R. L. (1977). Effect of expectation and disconfirmation on post exposure product evaluations: An alternative interpretation. *Journal of Applied Psychology*, 62(4), 480–486. <https://doi.org/10.1037/0021-9010.62.4.480>
- Oliver, R. L. (1980). A cognitive model of the antecedents and consequences of satisfaction decisions. *Journal of Marketing Research*, 17(4), 460–469. <https://doi.org/10.1177/002224378001700405>
- Pantouvakis, A., & Bouranta, N. (2013). The link between organizational learning culture and customer satisfaction: Confirming relationship and exploring moderating effect. *The Learning Organization*, 20(1), 48–64. <https://doi.org/10.1108/09696471311288528>
- Paul, A. K., & Anantharaman, R. N. (2003). Impact of people management practices on organizational performance: Analysis of a causal model. *The International Journal of Human Resource Management*, 14(7), 1246–1266. <https://doi.org/10.1080/0958519032000145648>
- Piccolo, R. F., & Colquitt, J. A. (2006). Transformational leadership and job behaviors: The mediating role of core job characteristics. *Academy of Management Journal*, 49(2), 327–340. <https://doi.org/10.5465/amj.2006.20786079>
- Piotrowski, S. J., & Rosenbloom, D. H. (2002). Nonmission-based values in results-oriented public management: The case of freedom of information. *Public Administration Review*, 62(6), 643–657. <https://doi.org/10.1111/1540-6210.00247>
- Podsakoff, N. P. (2003). Common method biases in behavioral research: A critical review of the literature and

- recommended remedies. *Journal of Applied Psychology*, 88(5), 879–903. <https://doi.org/10.1037/0021-9010.88.5.879>
- Poister, T. H., & Thomas, J. C. (2011). The effect of expectations and expectancy confirmation/disconfirmation on motorists' satisfaction with state highways. *Journal of Public Administration Research and Theory*, 21(4), 601–617. <https://doi.org/10.1093/jopart/mur004>
- Radnor, Z. J., & Barnes, D. (2007). Historical analysis of performance measurement and management in operations management. *International Journal of Productivity and Performance Management*, 56(5/6), 384–396. <https://doi.org/10.1108/17410400710757105>
- Resick, C. J., Hargis, M. B., Shao, P., & Dust, S. B. (2013). Ethical leadership, moral equity judgments, and discretionary workplace behavior. *Human Relations*, 66(7), 951–972. <https://doi.org/10.1177/0018726713481633>
- Rydberg, J., Nalla, M. K., & Meško, G. (2010). The perceived value of college education and experience to police work in Slovenia. *Journal of Criminal Justice and Security*, 12(4), 408–423.
- Simpson, D. M., & Katirai, M. (2006). *Indicator issues and proposed framework for a disaster preparedness index* (Working Paper No. 06-03). Center for Hazards Research and Policy Development, University of Louisville.
- Spector, A. J. (1956). Expectations, fulfillment, and morale. *The Journal of Abnormal and Social Psychology*, 52(1), 51–56. <https://doi.org/10.1037/h0047881>
- Tse, D. K., & Wilton, P. C. (1988). Models of consumer satisfaction formation: An extension. *Journal of Marketing Research*, 25(2), 204–212. <https://doi.org/10.1177/002224378802500209>
- Van Ryzin, G. G. (2004). Expectations, performance, and citizen satisfaction with urban services. *Journal of Policy Analysis and Management*, 23(3), 433–448. <https://doi.org/10.1002/pam.20020>
- Van Ryzin, G. G. (2005). Testing the expectancy disconfirmation model of citizen satisfaction with local government. *Journal of Public Administration Research and Theory*, 16(4), 599–611. <https://doi.org/10.1093/jopart/mui058>
- Van Ryzin, G. G. (2007). Pieces of a puzzle: Linking government performance, citizen satisfaction, and trust. *Public Performance & Management Review*, 30(4), 521–535. <https://doi.org/10.2753/PMR1530-9576300403>
- Van Ryzin, G. G. (2013). An experimental test of the expectancy-disconfirmation theory of citizen satisfaction. *Journal of Policy Analysis and Management*, 32(3), 597–614. <https://doi.org/10.1002/pam.21702>
- Wang, X., & Berman, E. (2001). Hypotheses about performance measurement in counties: Findings from a survey. *Journal of Public Administration Research and Theory*, 11(3), 403–428. <https://doi.org/10.1093/oxfordjournals.jpart.a003508>
- Yang, K., & Hsieh, J. Y. (2007). Managerial effectiveness of government performance measurement: Testing a middle-range model. *Public Administration Review*, 67(5), 861–879. <https://doi.org/10.1111/j.1540-6210.2007.00774.x>
- Zhu, W., Avolio, B. J., Riggio, R. E., & Sosik, J. J. (2011). The effect of authentic transformational leadership on follower and group ethics. *The Leadership Quarterly*, 22(5), 801–817. <https://doi.org/10.1016/j.leaqua.2011.07.004>