

Feedback intervention perceptions: Development and validation of a measure

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About the authors

Brandon Young, Ph.D. is a consultant, researcher, and educator. He earned his Ph.D. from the University of Central Florida in 2015. An expert in measuring and analyzing performance and behaviour, he regularly partners directly with clients to assess and diagnose problems, prescribe and evaluate management and organizational interventions, and improve decision-making. Brandon Young's interests include psychometric applications, linkages between management practices and organizational outcomes, and motivating organizational productivity through measurement and feedback. He has presented his work internationally and has published some of his work on the Productivity Measurement and Enhancement System (ProMES). Brandon Young is also a board member at the ProMES International Competence Centre (ProMES-ICC) and maintains the Professional in Human Resources (PHR) and SHRM Certified Professional (SHRM-CP) certificates.

Barbara Fritzsche, Ph.D. joined the faculty at UCF in 1996. In 1993, she received her Ph.D. in Industrial/Organizational Psychology from the University of South Florida. Prior to teaching at UCF, she taught at the University of North Florida and worked as Project Director in Research and Development for Psychological Assessment Resources, Inc. (a psychological test publisher). Her background includes evaluating, developing, and validating psychological tests, conducting job analyses, and managerial assessment and development. Barbara Fritzsche's research interests include workplace diversity, especially the aging workforce, and workplace wellness initiatives. She received the College of Sciences Award for Excellence in Graduate Teaching (2013) and has served as both I/O PhD Program Director (2003–2008) and MSIOP Program Director (2010–2015; 2016–2018). Barbara Fritzsche is now Associate Dean of Graduate Studies.

Abstract

Reactions toward performance feedback have critical implications for organizations and are of great interest to practitioners. Current measurement of employee experiences with feedback intervention varies widely and the literature is flooded with untested, coarse measures that largely neglect the complexity of feedback intervention. A new scale was developed to evaluate the characteristics of five feedback intervention components (i.e., performance measurement, feedback content, feedback delivery, organizational system support, and feedback source). Confirmatory factor analysis

supports a five-factor structure. Correlational analyses demonstrate strong, differential relationships with feedback reaction measures and job satisfaction. Regression analyses demonstrate direct effects on motivation and intent to use feedback, and organizational justice mediates the relationships. Results indicate that the measure has good psychometric properties and support the utility of the Feedback Intervention Perceptions Scale for both research and practice. The FIPS provides practitioners with an evidence-based tool for holistically auditing and diagnosing deficiencies in organizational feedback interventions. A short form of the FIPS and preliminary validity evidence is also presented.

Keywords: feedback, performance management, measurement development

Introduction

Organizations with strong performance management systems (PMS) outperform competitors on financial and non-financial measures (Bernthal, Rogers, & Smith, 2003). Such systems allow organizations to communicate performance expectations, and inform employees as to how well they are meeting those expectations. The intent is to motivate and develop employees by generating and delivering performance feedback that is aligned with organizational strategy, objectives, and standards (Cascio & Aguinis, 2011). Some have argued that the creation and maintenance of effective systems for disseminating feedback are critical to organizational survival and success (Taylor, Fisher, & Ilgen, 1984).

Unfortunately, evidence suggests that end users' attitudes toward their performance management systems are generally unfavourable (e.g., Leadership IQ, 2005; World at Work/Sibson, 2010). As such, performance management has received negative press (e.g., HR Magazine, 2015). Lizzio, Wilson, and MacKay (2008) posit that feedback strategies are only as effective as strong the user's ability and willingness to use them is. Perceptions of feedback intervention characteristics can influence divergent recipient reactions and ultimately, whether feedback is acted upon (Jawahar, 2010). Some researchers posit that these reactions are as critical to the effectiveness of the intervention as its reliability and validity (e.g., Dipboye & Pontbriand, 1981).

Currently, there is no one measure that is useful for holistically evaluating or auditing organizational feedback systems. While considerable attention has been devoted to performance management processes, much of the research has focused on the psychometric properties of appraisal tools (e.g., format, scale development,

rater accuracy) and has largely neglected their central purpose, measuring and communicating performance information in a way that will motivate improvement (e.g., Ilgen, Barnes-Farrell, & McKellin, 1993; DeNisi & Pritchard, 2006). Not only are perceptions of feedback interventions critical to this purpose (e.g., Dipboye & Pontbriand, 1981; Murphy & Cleveland, 1995), such criteria are of more interest to practitioners than the psychometric properties of performance appraisals (e.g., Thomas & Bretz, 1994; Murphy & Cleveland, 1995; Keeping & Levy, 2000).

Where perceptions of system characteristics are measured, the general research approach in the feedback and performance appraisal literature is to test the relationship between one (or few) system characteristic(s) and one (or few) outcome(s) at a time. This approach has led to the creation of disjointed and unreliable measures. Additionally, measurement of reactions is commonly done at a global level (e.g., “The performance feedback I received was accurate” or “The feedback process is fair”). While this level of measurement can be useful for theoretical purposes, it is less useful for practitioners who want to diagnose problems with organizational feedback systems. Unfortunately, these approaches may disregard the complexity of feedback intervention (Mulder & Ellinger, 2013).

We developed a multidimensional instrument, the Feedback Intervention Perceptions Scale (FIPS), to measure perceptions of five proposed major feedback intervention components (i.e., performance measurement, feedback content, feedback delivery process, feedback source, and system commitment). We then explored relationships of the FIPS with global cognitive (e.g., accuracy, utility, fairness) and affective (e.g., satisfaction with feedback) reactions to feedback intervention. Favourable perceptions of intervention characteristics were expected to be strongly related to positive global reactions to feedback intervention, and ultimately higher levels of motivation.

The FIPS is intended to have diagnostic utility for practitioners wishing to uncover deficiencies (e.g., invalid measures of performance, system training needs, lack of feedback specificity) or identify the strengths of an organization’s feedback intervention(s). For instance, parts of the feedback intervention could be operating effectively while others are not. Measuring and reviewing employee perceptions could help pinpoint where a system is lacking. This ability could save an organization thousands of dollars by preventing the premature abandonment of a system that may need some improvement in favour of the latest management fad and increase the return on investment for amending and maintaining the current system.

The FIPS is intended to be useful for gauging employee perceptions of their feedback interventions. Measurement at the facet level will allow practitioners to pinpoint potential problem areas. While an overall mean score and mean scores for each subscale can be calculated, practitioners may also want to attend to responses on individual items. Characteristics of the feedback intervention that are perceived unfavourably can be addressed and amended. Such information could also be broken down by unit or supervisor in order to deliver targeted remedies. In essence, the tool can provide feedback to management about the effectiveness of their feedback intervention, those who provide feedback, and the organizational support given to the intervention and the end users.

Scale development

Through an extensive literature review, several critical characteristics of feedback were identified. The characteristics tend to describe five major intervention components: (a) performance measurement, (b) feedback content, (c) feedback delivery, (d) system commitment, and (e) feedback source. They were chosen for three reasons: (a) they contain clear theoretical explanations for their effects on feedback reactions and organizational outcomes, (b) previous research has found support for their effects, and (c) they have clear implications for practitioners. The components and referent characteristics are listed and defined in Table 1.

Table 1
Feedback interventions characteristics and definitions by system component

Intervention characteristics	Definitions
Performance measurement	
System knowledge	Understanding of the measurement system and effort needed to complete performance measurement and change the performance standards when needed.
Valid measures	Extent to which unit personnel agree upon the measurement standards and feel the system realistically and consistently measures all job relevant standards of performance.
Feedback content	
Evaluative	Extent to which feedback tells the recipient how well they are performing (e.g., effectiveness as compared to organizational standards, goals, and/or historical performance) and how their performance links to outcomes.

Intervention characteristics	Definitions
Strategic	Extent to which feedback delivery involves action planning for performance improvement or behavioural change, strategy discussion, career planning, and goal/objective setting.
Illustrative	Extent to which feedback is delivered in an interpretable manner. Interpretation is guided by specific examples, clear reasoning, and information that can help the recipient integrate conflicting goals and determine where to allocate resources in proportion to their importance.
Valid content	Extent to which feedback is provided on job related behaviour, is based on standards that are under the recipient's control, and provides a complete picture of job performance.
Feedback delivery	
Available	The amount and the extent to which feedback is available when needed.
Participative	The extent to which employees' views are solicited and listened to during feedback delivery.
System commitment	
Incentives	The extent to which users are rewarded for their roles in the system.
Maintenance	The extent to which the organization monitors the system to make sure it is working as intended, making improvements/ adjustments where deemed necessary.
Training	The extent to which employees are trained to monitor performance and use feedback.
Feedback source	
Credibility	The extent to which feedback recipients deem the source of their feedback as a trusted expert who understands their job demands, pressures, and constraints and has adequate opportunity to observe their performance.
Multiple inputs	Extent to which feedback is based on information from multiple sources.
Supportiveness	Extent to which the source creates a comfortable environment and conveys helping behaviours when delivering feedback.

Item analysis method and results

Based on the literature review and a survey of subject matter experts (SME), more than 300 items were written to measure perceptions of feedback intervention. SMEs reviewed each item for clarity and independently sorted them into dimensions (Anderson & Gerbing, 1991). They first indicated which feedback intervention component (e.g., performance measurement, feedback content) was being assessed by each item and then indicated the referent characteristic (e.g., perceived system knowledge, evaluative). Items were refined, removed, or replaced based on this process, and the pool was reduced to 192 items. All items were to be rated on a simple seven-point Likert-type scale ranging from 1 (strongly disagree) to 7 (strongly agree). See Table 2 for sample items.

Table 2
Sample items and item sources

#	Scale	Sample items	Source
2	System knowledge	All the important objectives of my work are clearly communicated.	Pritchard (1997)
3	System knowledge	I know what good performance is on each measure.	Pritchard (1997)
5	System knowledge	I understand how my performance is measured on this job.	Pritchard (1997)
13	Valid measures	The performance measures cover all important aspects of my work.	New
14	Valid measures	All the important objectives of my work are clearly communicated.	Pritchard (1997)
15	Valid measures	Similar measures are used over time to evaluate my performance.	Pritchard (1997)
21	Evaluative	The feedback I receive lets me compare present performance with past performance.	Pritchard (1997)
22	Evaluative	The feedback I receive shows how well I'm performing my job compared to set standards for performance.	Pritchard (1997)
23	Evaluative	The feedback I receive tells me if previous attempts to improve performance worked.	Pritchard (1997)
24	Strategic	During feedback meetings, actions to remove obstacles that impede my performance are discussed.	New
25	Strategic	Feedback is presented in a way that encourages goal setting or action planning.	New
26	Strategic	Feedback meetings include "how-to" information on improving my performance.	New

#	Scale	Sample items	Source
32	Illustrative	Feedback provides information above what I already know about my performance.	New
35	Illustrative	Specific examples of behaviour are provided during feedback meetings.	New
36	Illustrative	The feedback I receive helps me prioritize what to improve.	Pritchard (1997)
38	Valid content	Feedback is based on my job-related behaviours.	Jawahar (2010)
39	Valid content	I am held responsible only for performance that is under my control.	Pritchard (1997)
41	Valid content	The feedback I receive reflects my actual job performance.	New
42	Available	Feedback is provided on a regular, predictable schedule.	New
45	Valid content	Feedback information is available soon after the performance period.	Pritchard (1997)
46	Available	Feedback is usually available when I want performance information.	Pritchard (1997)
49	Participative	During feedback meetings, I have the opportunity to state 'my side' of the issues.	Jawahar (2010); Giles & Mossholder (1990); Greller (1975)
50	Participative	Feedback meetings give me an opportunity to express my views about the way my performance is measured.	Gaby (2004)
51	Participative	I have the opportunity to provide ideas for improvement based on the feedback I receive.	Pritchard (1997)
54	Incentives	This organization rewards supervisors for delivering quality feedback.	New
56	Maintenance	My supervisor(s) openly support the way employees get information about their performance.	Pritchard (1997)
57	Maintenance	The quality of the information provided through feedback is reviewed regularly (perhaps by top management or a group of peers).	Pritchard (1997)
60	Training	I receive training on my role in our performance management process.	Roberts & Reed (1996)
62	Credibility	[The source of my feedback] has adequate knowledge of my job and its performance standards.	New
63	Credibility	[The source of my feedback] has observed my performance under both routine and pressured conditions.	Findley et al. (2000)
64	Credibility	[The source of my feedback] is familiar with all phases/aspects of my work.	Findely et al. (2000); Evans & McShane (1988)
67	Multiple inputs	Measurement of my performance comes from multiple sources (e.g., the task, co-workers, other managers, customers).	New
69	Multiple inputs	My feedback is based on information from multiple sources (e.g., the task, co-workers, other managers, customers).	New

#	Scale	Sample items	Source
72	Supportive	[The source of my feedback] comes prepared to feedback meetings.	Roberts & Reed (1996)
73	Supportive	The source of my feedback] ends feedback meetings on a positive note.	Nemeroff & Wexley (1979)
74	Supportive	[The source of my feedback] helps me to feel at ease during feedback meetings.	Gaby (2004)

Seventy-nine students from a large southeastern university and 103 workers from Amazon’s Mechanical Turk (MTurk; www.MTurk.com) completed the 192-item measure. All were employed (20+ hours/week) and had received formal performance feedback within the last year. Items with low inter-item correlations, extreme means, high skew and/or low variance were eliminated. Eighty items were retained. Initial scale statistics including reliability coefficients and intercorrelations are presented in Table 3.

Table 3
Descriptive scale statistics and intercorrelations

Scale	No. of Items	Mean	(SD)	1	2	3	4	5
1 Performance measurement	16	5.64	(.73)	(.84)				
2 Feedback content	28	5.50	(.87)	.77**	(.90)			
3 Feedback delivery	11	5.32	(1.08)	.59**	.76**	(.92)		
4 System commitment	11	5.00	(1.22)	.50**	.66**	.65**	(.90)	
5 Feedback source	14	5.47	(.92)	.71**	.81**	.71**	.68**	(.89)

Note. $N = 182$. Correlations are among scales created from averaging items. Standardized latent factor correlations are found in Figure 8. Cronbach alpha coefficients reported on diagonal. ** $p < .001$.

Next, confirmatory factor analysis (CFA) was used to provide an initial test of five unique models of the factor structure of the 80-item scale. Descriptions of the five models are presented in Table 4 and illustrations of each model are presented in Figures 1–5. All models were fit using LISREL 8.8 with maximum likelihood estimation (Jöreskog & Sörbom, 2006). The proposed Higher-Order Model (Model 1) did not converge, suggesting poor model fit. In contrast, each of the four competing models fit the data well (see Table 5 and Figures 6–8).

Table 4
Model descriptions

#	Model	Description
1	Higher-Order Model	Hierarchical, such that a higher-order "Feedback Intervention Perceptions" factor was defined by second-order feedback intervention components (i.e., performance management, feedback content, feedback delivery, system commitment, and feedback source). The second-order factors were defined by component characteristics (e.g., valid measures, strategic). It was hypothesized that the second-level factors accounted for the correlations between the first-order factors. Items were expected to load directly onto their respective first-order factors (e.g., seven items loading onto Perceived System Knowledge, nine items loading onto Valid Performance Measures) and the first-level factors were expected to load onto the second-order factors (e.g., System Knowledge and Valid Measures would load onto Performance Measurement).
2	Five-Factor Model	Intervention component factors defined an overall "Feedback Intervention Perceptions" factor; however, Model 2 did not include the fourteen system characteristic factors (first-order factors from Model 1). All of the items were expected to load directly onto the five intervention component factors.
3	Oblique Five-Factor Model	Latent factors were permitted to correlate freely. Fit for this model might suggest the scale measures five correlated factors of feedback intervention perceptions, rather than a single higher-order "Feedback Intervention Perceptions" factor defined by five latent factors.
4	Fourteen-Factor Model	The characteristics factors (first-order factors from Model 1) defined an overall "Feedback Intervention Perceptions" factor; however, Model 4 did not include the five system component factors. All of the items were expected to load directly onto the fourteen characteristics factors.
5	Single-Factor Model	If feedback intervention perceptions a unitary construct, every path between the indicators and general factor should be significant and reasonably large. Should this model fit the data better than the Higher-Order Model, the FIPS is not measuring distinct latent feedback intervention characteristics factors but instead, a unitary construct.

Table 5
Fit results for structural models

Model	χ^2	df	RMSEA	RMSEA 90% CI	NNFI	CFI	SRMR	$\Delta\chi^2$	ΔCFI
1 Higher-Order	-	-	-	-	-	-	-	-	-
2 Five-Factor	6058.60	3075	.073	(.071-.076)	.934	.936	.081	-	-
3 Oblique Five-Factor	6017.44	3070	.073	(.070-.076)	.934	.936	.080	41.16**	.000
4 Fourteen-Factor	5368.29	3066	.064	(.062-.067)	.945	.947	.083	690.31**	.011
5 Single-Factor	8216.37	3380	.096	(.094-.099)	.917	.920	.084	2157.77**	.016*

Note. $N = 182$. All chi-square analyses were done in comparison to the Five-Factor Model. df = degrees of freedom; CFI = comparative fit index; RMSEA = root-mean-square error of approximation; RMSEA 90% CI = root-mean-square error of approximation 90% confidence interval upper and lower bounds; NNFI = non-normed fit index; CFI = comparative fit index; SRMR = standardized root mean residual. ** = $\Delta\chi^2 p < .001$. * = $\Delta CFI > .01$

Figure 1
The proposed Higher-Order Model (Model 1)



Figure 2
Five-Factor Model (Model 2)

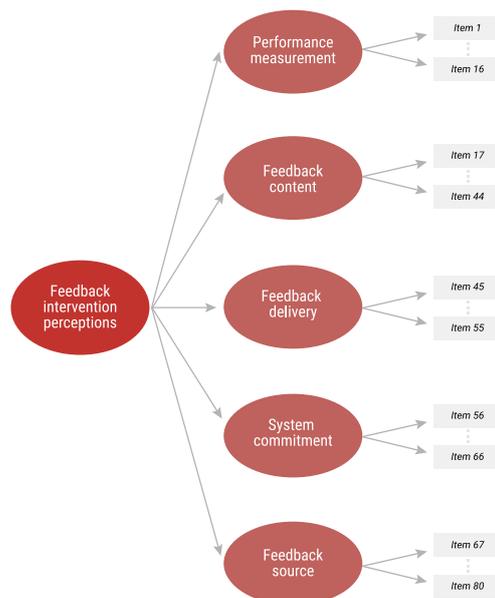


Figure 3
Oblique Five-Factor Model (Model 3)

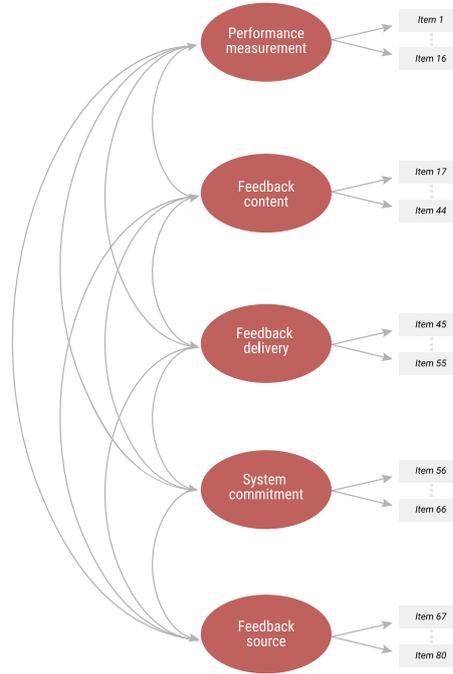


Figure 4
Fourteen-Factor Model (Model 4)

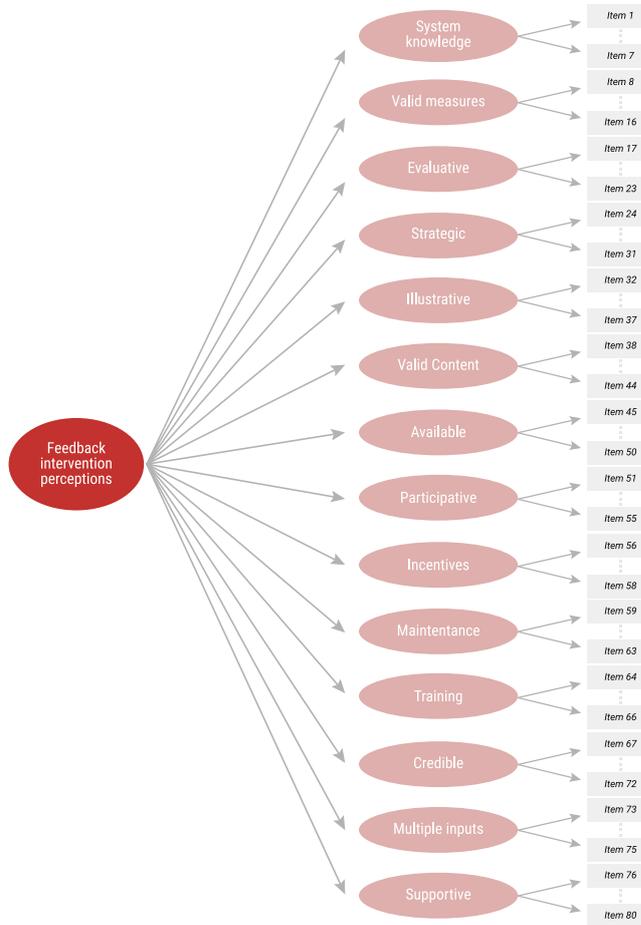


Figure 5
Single-Factor Model (Model 5)

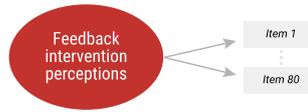
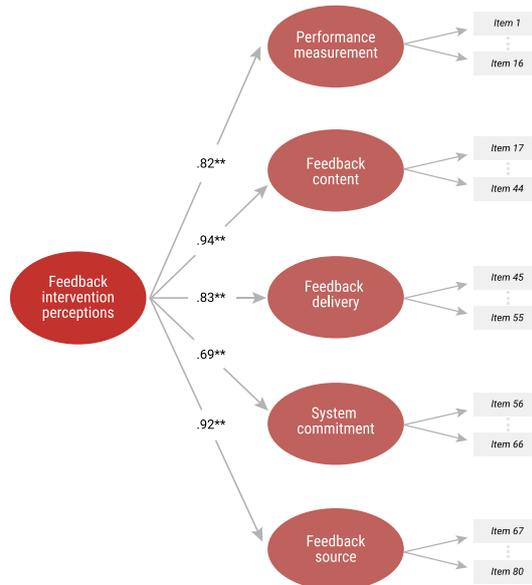
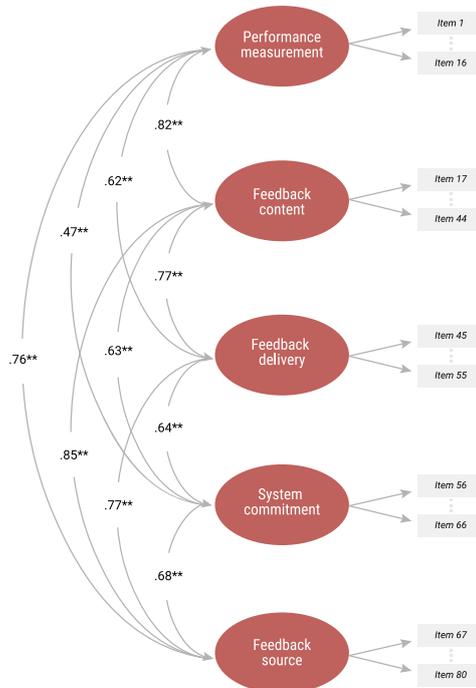


Figure 6
Standardized solution for the Five-Factor Model (Model 2)



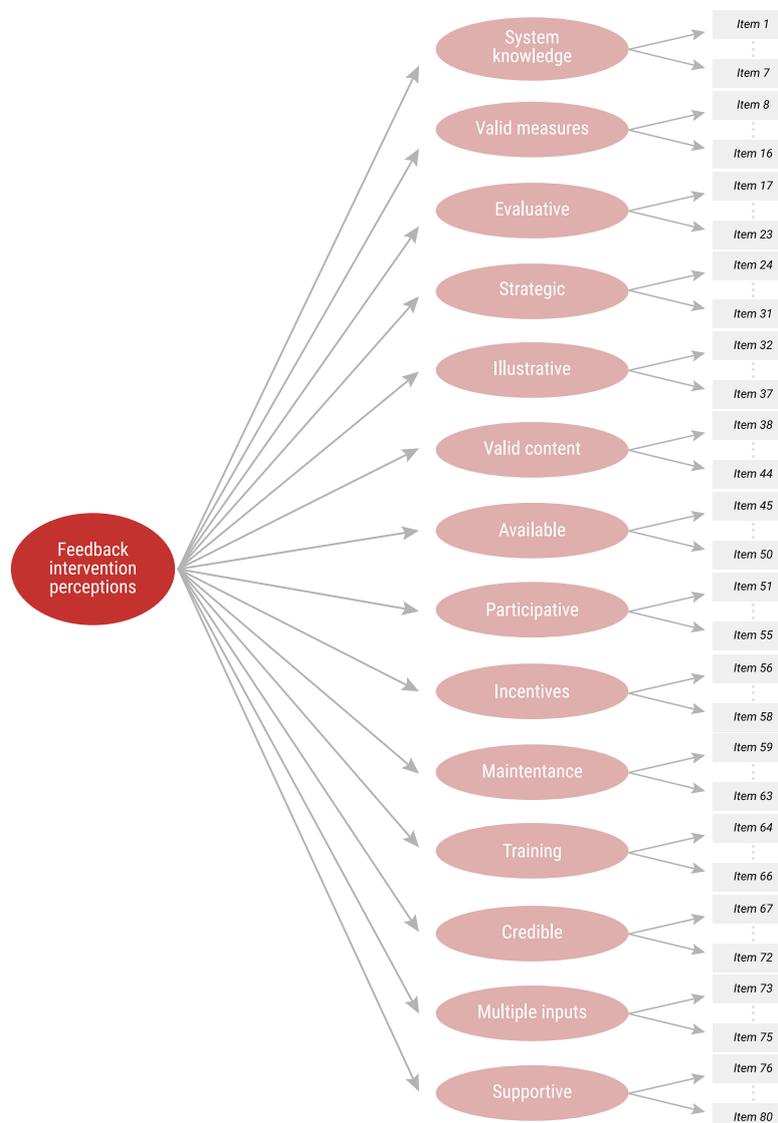
$\chi^2 = 6058.60$, $df = 3075$. CFI = .936, RMSEA = .073. ** = $p < .001$.

Figure 7
Standardized solution for the Oblique Five-Factor Model (Model 3)



$\chi^2 = 6017.44$, $df = 3070$. CFI = .936, RMSEA = .073. ** = $p < .001$.

Figure 8
Standardized solution for the Fourteen-Factor Model (Model 4)



$\chi^2 = 6017.44$, $df = 3070$. CFI = .936, RMSEA = .073. ** = $p < .001$.

Respecification

While each of the Model 2 factor loadings were significant and the modification indices did not suggest model respecification, there were three items from the performance measurement scale and three items from the feedback content scale with questionable loadings (below .40). We kept the three items from the performance management scale because they measured aspects of the domain that could be useful to practitioners and were not covered by other items. However, the feedback content items were removed because of poor item wording.

Regarding Model 4, modification indices for the incentive, training, and maintenance factors were high, suggesting they might be measuring the same latent factor. The indicators for these factors loaded strongly on the system commitment factor in the Five-Factor Model. Considering this evidence along with the inter-item correlations and high internal consistency coefficients of the three item training ($\alpha = .86$) and incentive ($\alpha = .87$) scales, it made empirical and theoretical sense to drop redundant items from the training and incentive scales, and collapse the three system commitment facets (including maintenance) into a unitary factor. As a result, one item was dropped from the incentives factor and two items were dropped from the training factor.

Analyses resulted in a seventy-four item measure. The Five-Factor Model was favoured over the fourteen-factor solution as the minimal improvement in fit was not preferred over parsimony. As not to capitalise on chance, the factor structure of the modified instrument was tested on a second sample.

Scale validation

Data was collected from a second sample to cross validate the factor structure findings and test convergent, discriminant, and criterion-related validity. Specifically, tests of reliability and confirmatory factor analyses (CFA) were conducted to confirm the internal consistency and fit of the Five-Factor Model (Model 2). Competing models, the Oblique Five-Factor (Model 3), the Single-Factor (Model 4), and the Higher-Order (Model 1), were also tested. The FIPS was expected to display strong, positive correlations with measures of cognitive feedback reactions (e.g., accuracy, fairness, utility). Additionally, the FIPS was expected to have a strong, positive relationship with the affective feedback reactions, positive affectivity toward feedback and feedback intervention satisfaction. It was expected that there would be a strong, negative relationship between negative affectivity toward feedback and the FIPS. For purposes of evaluating discriminant validity, two measures of job satisfaction were administered. Relationships with these measures were expected to be of a lower magnitude than the relationships with the feedback reaction measures.

Considering the research linking perceptions of organizational justice to feedback intervention and critical organizational criteria (e.g., Roberson & Stewart, 2006; Folger et al., 1992; Elicker, 2000), justice was expected to mediate the relationship between the FIPS and motivation. The outcome, motivation, was operationalised in two different ways in this study, motivation and intent to use feedback.

Participants

Participants were 295 employed (40+ hours/week) adults recruited from Qualtrics Online Sample services and Amazon’s MTurk who had received performance feedback within the last six months. Participants completed the FIPS and the following measures.

Measures

For all items, unless otherwise noted, respondents indicated their level of agreement on a seven-point Likert scale from 1 (strongly disagree) to 7 (strongly agree). Reliability estimates for each scale are presented in Table 7.

Table 7
Descriptive statistics and intercorrelations

Scale (# of items)	Mean (SD)	1	2	3	4	5	6	7	8	9	10
1 FI Perceptions (74)	5.42 (.97)	(.98)									
2 Accuracy (4)	5.21 (1.25)	.79**	(.95)								
3 Fairness (3)	5.23 (1.38)	.80**	.86**	(.94)							
4 Achievability (3)	5.33 (1.21)	.74**	.73**	.74**	(.90)						
5 Utility (6)	5.26 (1.32)	.82**	.76**	.78**	.83**	(.95)					
6 Satisfaction with FI (5)	5.11 (1.49)	.83**	.83**	.86**	.72**	.82**	(.95)				
7 Positive affectivity (6)	3.63 (1.00)	.65**	.69**	.66**	.57**	.64**	.69**	(.95)			
8 Negative affectivity (6)	1.79 (1.00)	-.60**	-.64**	-.65**	-.46**	-.58**	-.65**	-.65**	(.94)		
9 Job sat. 1 (5)	5.26 (1.35)	.53**	.50**	.54**	.44**	.56**	.51**	.54**	-.53**	(.88)	
10 Job sat. 2 (3)	5.58 (1.42)	.57**	.54**	.59**	.47**	.59**	.61**	.57**	-.49**	.88**	(.96)

Note. (N = 294) The alpha internal-consistency reliability coefficients appear in parentheses along the diagonal. * $p < .05$, ** $p < 0.001$.

Cognitive reactions

Cognitive reactions (i.e., accuracy, fairness, and achievability) were measured using scales adapted from the multi-dimensional measure of feedback acceptance by Kendharnath and colleagues (2010) and utility was assessed using six items from Jawahar (2010). An example item is: “The feedback I receive helps me recognise my job performance strengths and weaknesses.”

Affective reactions

A measure of satisfaction with feedback intervention was developed for this study. A sample item is: “I am satisfied with the way my performance is measured.” Affect

toward feedback was measured using scales based on those developed by Zuwerink and Devine (1996) and modified by Keeping and Levy (2000). Respondents indicated how well each adjective (e.g., happy, agitated) described their typical feelings following performance feedback from 1 (does not apply) to 7 (applies very much).

Job satisfaction

Job satisfaction was measured using Brayfield and Rothe's (1951) job satisfaction scale as modified by Judge and colleagues (e.g., Judge, Bono, & Locke, 2000) and the Michigan Organizational Assessment Questionnaire (Cammann, Fichman, Jenkins, & Klesh, 1979).

Justice

Organizational justice was measured with a seven-item procedural justice scale and a four-item distributive justice scale (Colquitt, 2001). Both used a five-point scale from 1 (to a small extent) to 5 (to a large extent).

Motivation

Motivation was measured with the Effort and Direction scales from the Motivation Assessment System (MAS; Pritchard, 2010). The measure operationalises the Pritchard-Ashwood model of motivation. The Effort scale assessed the amount of energy exerted toward one's job and the Direction scale measured how effectively effort is applied toward actions that benefit the organization.

Intent to use feedback

Six items from the Kendharnath et al. (2010) "Intent to use" subscale were adapted to measure employee's motivation to use feedback (e.g., "I use the performance feedback I receive to identify skills that I want to develop"). Respondents indicated their level of agreement on a seven-point Likert scale from 1 (strongly disagree) to 7 (strongly agree).

Control variables

While findings are mixed, demographic variables such as age and tenure may impact feedback intervention perceptions. As such, several demographic variables (e.g., age, gender, race, industry, organizational tenure, position, tenure in current position) were used as control variables. Further, favourability of last feedback, feedback medium, and length of time since last feedback meeting were included for control purposes.

Results

Scale statistics including reliability coefficients and intercorrelations are presented in Table 6. The internal consistency for the entire scale was .98.

Table 6
Descriptive scale statistics and intercorrelations (Sample 2)

Scale	No. of items	Mean	(SD)	1	2	3	4	5
1 Performance measurement	16	5.57	(.95)	(.91)				
2 Feedback content	25	5.48	(1.06)	.85**	(.96)			
3 Feedback delivery	11	5.46	(1.07)	.73**	.82**	(.90)		
4 System commitment	8	4.89	(1.32)	.71**	.76**	.70**	(.91)	
5 Feedback source	14	5.38	(1.07)	.73**	.82**	.79**	.71**	(.93)

Note. $N = 294$. Correlations are among scales created from averaging items. Standardized latent factor correlations are found in Figure 11. Cronbach alpha coefficients reported on diagonal. ** $p < .001$.

Confirmatory factor analysis

All models were fit using LISREL 8.8 with maximum likelihood estimation (Jöreskog & Sörbom, 2006). The Five-Factor, Oblique Five-Factor, and Twelve-Factor Models best fit the data. Fit indices for the five models are presented in Table 8 and completely standardized solutions in Figures 10–12. Item loadings for the Five and Twelve-Factor Models are presented in Tables 9 and 10.

Table 8
Fit results for structural models (Sample 2)

Model	χ^2	df	RMSEA	RMSEA 90% CI	NNFI	CFI	SRMR	$\Delta\chi^2$	ΔCFI
1 Higher-Order	-	-	-	-	-	-	-	-	-
2 Five-Factor	7349.82	2622	.087	(.085-.090)	.963	.964	.073	-	-
3 Oblique Five-Factor	7322.31	2617	.087	(.085-.089)	.963	.964	.072	27.51**	.000
4 Twelve-Factor	6193.73	2615	.068	(.066-.071)	.973	.974	.074	1156.10**	.010
5 Single-Factor	10671.22	2627	.102	(.100-.104)	.955	.956	.068	3321.39**	.008

Note. $N = 294$. All chi-square analyses were done in comparison to the Five-Factor Model. df = degrees of freedom; CFI = comparative fit index; RMSEA = root-mean-square error of approximation; RMSEA 90% CI = root-mean-square error of approximation 90% confidence interval upper and lower bounds; NNFI = non-normed fit index; CFI = comparative fit index; SRMR = standardized root mean residual. ** = $\Delta\chi^2 p < .001$. * = $\Delta CFI > .01$

Table 9
Factor loadings for the Five-Factor solution

#	Scale_Item	PM	FC	FD	OS	FS
1	PM_PSK1	.501				
2	PM_PSK2	.803				
3	PM_PSK3	.642				
4	PM_PSK4	.505				
5	PM_PSK5	.725				
6	PM_PSK6	.639				
7	PM_PSK7	.680				
8	PM_Val1	.538				
9	PM_Val2	.415				
10	PM_Val3	.697				
11	PM_Val4	.636				
12	PM_Val5	.463				
13	PM_Val6	.665				
14	PM_Val7	.796				
15	PM_Val8	.673				
16	PM_Val9	.815				
17	FC_Eval1		.716			
18	FC_Eval2		.674			
19	FC_Eval3		.652			
20	FC_Eval4		.700			
21	FC_Eval5		.713			
22	FC_Eval6		.624			
23	FC_Eval7		.724			
24	FC_Strat1		.610			
25	FC_Strat2		.778			
26	FC_Strat3		.693			
27	FC_Strat4		.730			
28	FC_Strat5		.724			
29	FC_Strat6		.763			
30	FC_Strat7		.553			
31	FC_Strat8		.784			
32	FC_Illust1		.566			
33	FC_Illust2		.801			
34	FC_Illust3		.586			
35	FC_Illust4		.655			
36	FC_Illust5		.809			
37	FC_Illust6		.700			
38	FC_Val2		.566			
39	FC_Val5		.586			
40	FC_Val6		.767			

#	Scale_Item	PM	FC	FD	OS	FS
41	FC_Val7		.803			
42	FD_Avail1			.426		
43	FD_Avail2			.534		
44	FD_Avail3			.639		
45	FD_Avail4			.508		
46	FD_Avail5			.485		
47	FD_Avail6			.779		
48	FD_Part1			.755		
49	FD_Part2			.774		
50	FD_Part3			.836		
51	FD_Part4			.809		
52	FD_Part5			.822		
53	SC_Incent1				.668	
54	SC_Incent3				.629	
55	SC_Maint1				.661	
56	SC_Maint2				.623	
57	SC_Maint3				.751	
58	SC_Maint4				.793	
59	SC_Maint5				.804	
60	SC_Train1				.707	
61	FS_Cred1					.770
62	FS_Cred2					.759
63	FS_Cred3					.632
64	FS_Cred4					.732
65	FS_Cred5					.673
66	FS_Cred6					.694
67	FS_Mult1					.528
68	FS_Mult2					.471
69	FS_Mult3					.507
70	FS_Supp1					.718
71	FS_Supp2					.781
72	FS_Supp3					.662
73	FS_Supp4					.704
74	FS_Supp5					.757
Higher-Order Loadings		.910	.980	.868	.782	.896

Note. PM = Performance measurement; FC = Feedback content; FD = Feedback delivery; SC = System commitment; FS = Feedback source. All loadings are significant at $p < .001$.

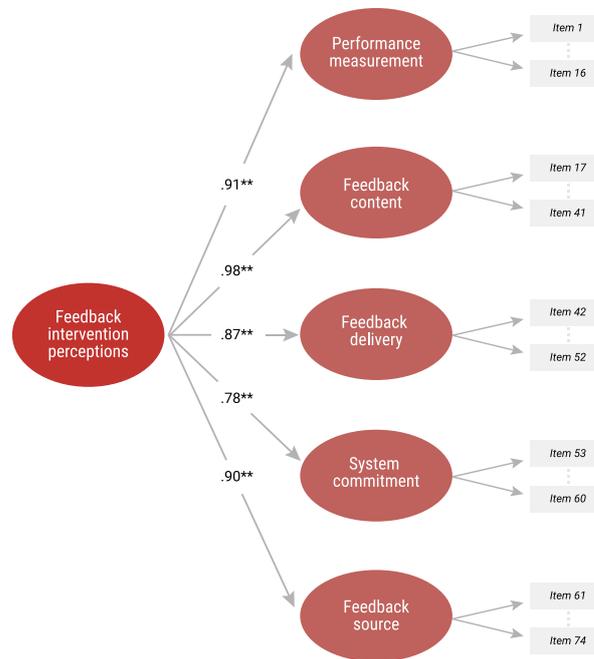
Table 10
Factor loadings for the Twelve-Factor solution

#	System knowl.	Valid measures	Evaluat.	Strategic	Illust.	Valid content	Available	Participat.	System commit.	Credible	Multiple inputs	Support.
1	.512											
2	.817											
3	.689											
4	.542											
5	.741											
6	.627											
7	.706											
8		.542										
9		.428										
10		.690										
11		.642										
12		.468										
13		.681										
14		.800										
15		.671										
16		.816										
17			.699									
18			.695									
19			.728									
20			.781									
21			.810									
22			.632									
23			.792									
24				.630								
25				.778								
26				.732								
27				.824								
28				.823								
29				.744								
30				.578								
31				.852								
32					.568							
33					.820							
34					.611							
35					.655							
36					.787							
37					.698							
38						.604						
39						.659						
40						.868						

#	System knowl.	Valid measures	Evaluat.	Strategic	Illust.	Valid content	Available	Participat.	System commit.	Credible	Multiple inputs	Support.
41						.883						
42							.585					
43							.694					
44							.774					
45							.647					
46							.667					
47							.707					
48								.771				
49								.833				
50								.867				
51								.845				
52								.830				
53									.667			
54									.628			
55									.662			
56									.626			
57									.749			
58									.791			
59									.805			
60									.708			
61										.816		
62										.890		
63										.646		
64										.851		
65										.568		
66										.784		
67											.895	
68											.885	
69											.912	
70												.699
71												.839
72												.673
73												.804
74												.861
	.891	.940	.886	.880	.994	.923	.837	.793	.781	.781	.542	.820

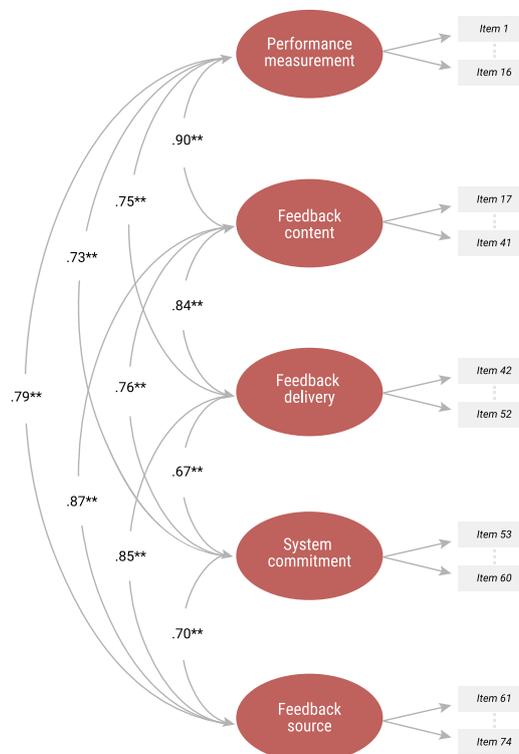
Note. $N = 294$. All loadings were significant at $p < .001$.

Figure 10
Standardized solution for the Five-Factor Model (Model 2; Sample 2)



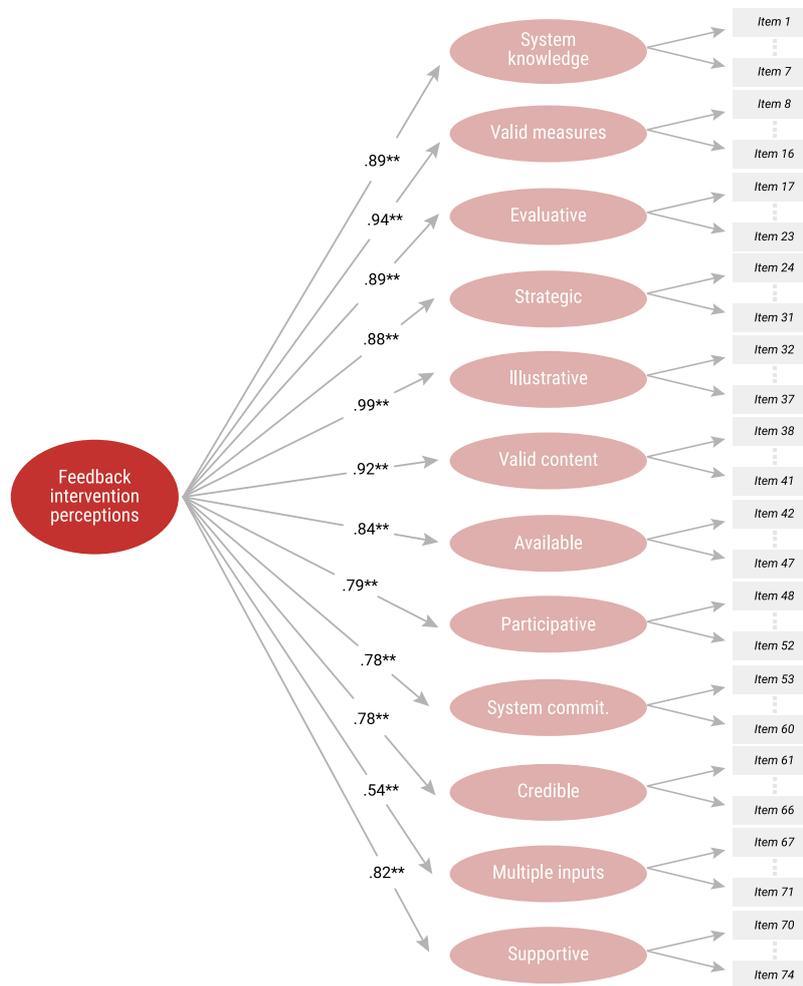
$\chi^2 = 7349.82$, $df = 2622$. CFI = .964, RMSEA = .087. ** = $p < .001$.

Figure 11
Standardized solution for the Oblique Five-Factor Model (Model 3; Sample 2)



$\chi^2 = 7322.31$, $df = 2617$. CFI = .964, RMSEA = .087. ** = $p < .001$.

Figure 12
Standardized solution for the Twelve-Factor Model (Model 4; Sample 2)



$\chi^2 = 6193.73$, $df = 2615$. CFI = .974, RMSEA = .068. ** = $p < .001$.

Convergent and discriminant validity evidence

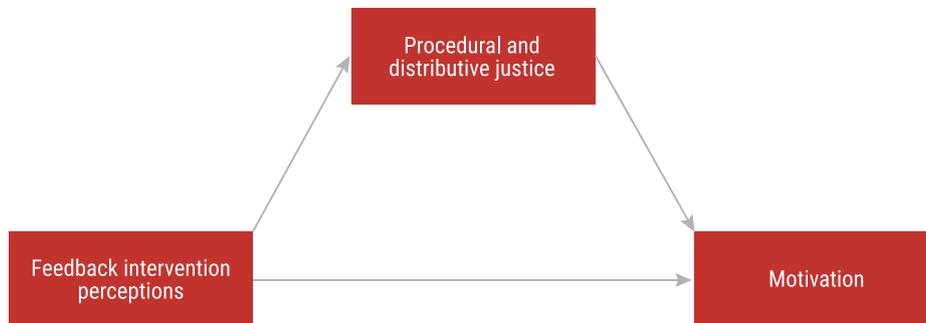
The relationships generally match expected patterns (Table 7). For example, the strong correlation between feedback content and utility ($r = .80$) would be expected as strategic and illustrative are two of the characteristics of this component. As a composite, the FIPS displayed strong, positive relationships with each of the feedback reaction scales ($r = .65$ to $r = .83$), and a strong, negative relationship with the negative affectivity scale ($r = -.60$). Also, as expected, correlations between the FIPS and job satisfaction scales were strong and positive ($r = .53$ and $r = .57$); however, Z values (Lee & Preacher, 2013) indicated that these correlations were significantly weaker than the relationships with the feedback reaction scales. Specifically, the relationships between FIPS and accuracy, fairness, achievability, utility, feedback intervention satisfaction, and

negative affectivity were significantly stronger than the relationships between FIPS and both job satisfaction measures at $p < .001$. The correlation between FIPS and feedback intervention satisfaction was significantly stronger than the correlation between the five-item measure of job satisfaction ($p < .05$), but not the three-item measure ($p = .06$).

Criterion related validity evidence

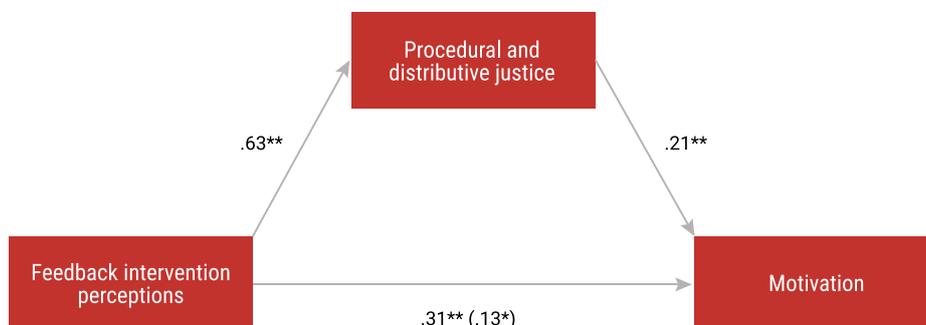
To test the mediation model presented in Figure 9, regression analyses were conducted using the PROCESS Procedure 2.13.1 for SPSS (Hayes, 2013). All demographic items were included in each of the models as covariates.

Figure 9
Proposed justice model



The FIPS had significant direct effects on procedural and distributive justice ($b = .63$, 95 % BC CI = .55-.71; $t = 15.73$, $p < .001$) and motivation ($b = .31$, 95% BC CI = .23-.38; $t = 7.71$, $p < .001$; Figure 14). Further, the FIPS explained 67% ($F = 34.90$, $p < .001$) of the variance in procedural and distributive justice and 29% ($F = 7.14$, $p < .001$) of the variance in motivation (see Figure 13).

Figure 13
Standardized regression coefficients for justice model (motivation)

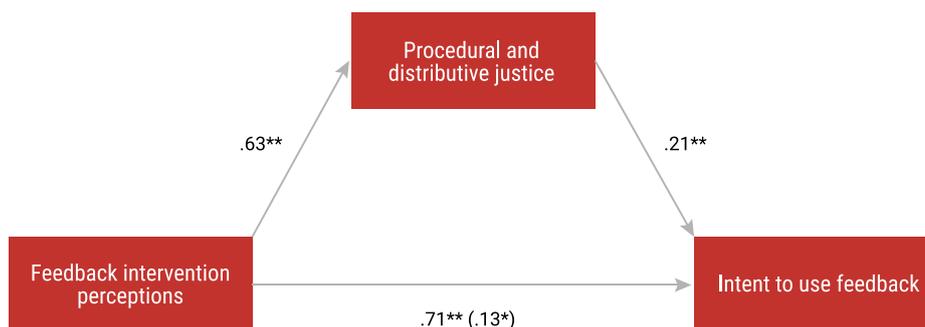


Note. The standardized indirect effect between FIPS and motivation is in parentheses. * $p < .05$, ** $p < .001$

When motivation was regressed onto procedural and distributive justice and the FIPS, both organizational justice ($b = .21$, 95 % BC CI = .09-.32, $t = 3.44$, $p < .001$) and the FIPS ($b = .18$, 95 % BC CI = .07-.28, $t = 3.35$, $p = .001$) had significant direct effects on motivation. This model explained 32% of the variance in motivation ($F = 7.67$, $p < .001$). The standardized indirect effect was $(.63)(.21) = .13$ (95% BC CI = .05 to .21). Considering that the confidence interval does not include zero, the indirect effect was interpreted as statistically significant in the direction predicted by the mediation hypothesis. While the results of the test of indirect effects suggest that procedural and distributive justice mediate the relationship between feedback intervention perceptions and motivation, Zhao, Lynch, and Chen (2010) would classify this relationship as “Complimentary Mediation.” Meaning, while there was evidence for mediation, the significant regression coefficient between the independent and dependent variables with the mediator present in the model would suggest the likelihood of an omitted mediator in the direct path.

A similar mediation model was tested using intent to use feedback as the outcome. The FIPS had a significant direct effect on procedural and distributive justice ($b = .63$, 95 % BC CI = .55-.71; $t = 15.71$, $p < .001$) and intent to use feedback ($b = .84$, 95 % BC CI = .74-.95; $t = 15.66$, $p < .001$). Further, the FIPS explained 67% ($F = 34.90$, $p < .001$) of the variance in procedural and distributive justice and 54% ($F = 20.52$, $p < .001$) of the variance in intent to use feedback (see Figure 14).

Figure 14
Standardized regression coefficients for justice model (intent to use feedback)



Note. The standardized indirect effect between the FIPS and Intent to use feedback is in parentheses.
* = $p < .05$, ** $p < .001$

When intent to use feedback was regressed onto procedural and distributive justice and the FIPS, both procedural and distributive justice ($b = .21$, 95 % BC CI = .05–.37, $t = 2.61$, $p < .05$) and the FIPS ($b = .71$, 95 % BC CI = .57–.85, $t = 9.71$, $p < .001$) had significant direct effects on intent to use feedback. This model explained 55% of the variance in intent to use feedback ($F = 20.12$, $p < .001$). The standardized indirect effect was $(.63)(.21) = .13$ (95% BC CI = $-.01$ to $.26$). As the confidence interval includes zero, the indirect effect was not interpreted as statistically significant. Zhao and colleagues (2010) would classify this model as a “Direct-only (Non-mediation)” effect and suggest the likelihood of an omitted mediator.

Discussion

Results provide preliminary evidence for the reliability and internal structure of a five-factor measure of feedback intervention perceptions. The FIPS also displayed strong, positive relationships with several feedback reaction measures. Consistent with expectations, these correlations were significantly stronger than those between the FIPS and the more distal construct, job satisfaction. The FIPS also accounted for significant variance in organizational justice, motivation, and intent to use feedback. Finally, regression analyses suggested that organizational justice mediated the effect of FIPS on motivation.

The new measure may provide researchers a more sound approach to studying the employee experience with feedback by examining the components and characteristics of feedback intervention. Evidence was found for the utility of calculating composite scores for the total FIPS, the five component factors, and the twelve characteristic factors. Scale scores at each level were related meaningfully with measures of feedback reaction, job satisfaction, organizational justice, and motivation. While the evidence is a good start, further research is needed to refine and establish the FIPS as a standardized measure of feedback intervention perceptions.

The FIPS has the potential to allow researchers to take a more holistic approach to studying feedback intervention. Current research is often focused on only one or few systems characteristics at a time (e.g., frequency, sign, timeliness). The new model may allow researchers to examine feedback interventions at a more intricate level than measures of global reactions or characteristics that blur system component lines.

In addition to implications for theory and research, the FIPS may be useful for practical application. Practitioners charged with evaluating or fixing broken performance

management systems are challenged by the variety of potential changes that can be made (e.g., scale, medium, criteria, incentives, training). Considering feedback is likely the most critical aspect of performance management, the FIPS can be used to evaluate several characteristics of five empirically distinct intervention components. The results can help practitioners more quickly diagnose system issues and enact specific remedies. These remedies can be evaluated over time with the FIPS. Should future research identify consistent relationships between the FIPS facets and feedback reactions and organizational outcomes, practitioners may also be able to amend systems based on the outcomes they want to effect. Further, this tool could prove useful across different types of feedback interventions (e.g., performance appraisal, ProMES, Management by Objectives, developmental assessment centers, coaching interventions).

At 74 items practitioners may view the full scale as too time consuming to administer. Fortunately, there is potential for using the component or characteristic facet level scales in cases where the full measure is not desired or necessary. A short form of the FIPS (Table 11) has also been developed based on the principles outlined in the lead article of this special issue (Pritchard & Wright, 2020) and correlations between FIPS items and key outcomes (e.g., feedback reactions, organizational justice, job satisfaction, motivation). While further research is needed to confirm the psychometric properties and utility of the short form, preliminary analyses support its utility for practice. The short form consists of 26 items and provides adequate coverage of the facets within each intervention component. In cases where perceptions are unfavourable toward one or more of the five intervention components, a practitioner could use the facet level subscales from the full FIPS to diagnose specific issues.

Validation is an iterative process and is never fully completed. Future research should test differential relationships between feedback intervention components and a host of other self- and other-report variables (e.g., performance, satisfaction with supervisor, turnover intentions). A particular strength of this study is that participants rated their actual feedback intervention versus contrived feedback intervention in a laboratory setting where participants may not be invested in the intervention. Nevertheless, future research should examine the FIPS within a large organization. Moreover, longitudinal research is needed to examine the long-term effects of experience with feedback intervention and explore causal relationships with critical organizational criteria. With the collection of more data, the FIPS can also be standardized and “cut-off” scores can be derived. Cut-off scores may better inform consultants and/or management about failures within a feedback intervention.

Table 11
Feedback Intervention Perceptions Scale - Short Form

#	Intervention component	Facet	Item
1	Performance measurement	System knowledge	All the important objectives of my work are clearly communicated.
2	Performance measurement	System knowledge	I understand how my performance is measured on this job.
3	Performance measurement	Valid measures	My performance evaluations are based on performance goals and standards agreed to at the beginning of the performance period.
4	Performance measurement	Valid measures	Performance standards are applied consistently across members of my work unit.
5	Performance measurement	Valid measures	The performance measures cover all important aspects of my work.
6	Performance measurement	Valid measures	The objectives for my work unit are the right objectives.
7	Feedback content	Evaluative	The feedback I receive lets me compare present performance with past performance.
8	Feedback content	Evaluative	The feedback I receive shows how well I'm performing my job compared to set standards for performance.
9	Feedback content	Strategic	Feedback meetings include the setting of clear performance goals.
10	Feedback content	Strategic	My career goals are discussed during feedback meetings.
11	Feedback content	Illustrative	I receive clear explanations for why my performance is evaluated as it is.
12	Feedback content	Illustrative	The feedback I receive helps me prioritize what to improve.
13	Feedback content	Valid Content	I am held responsible only for performance that is under my control.
14	Feedback content	Valid Content	The feedback I receive reflects my actual job performance.
15	Feedback delivery	Available	Feedback meetings are adequately frequent.
16	Feedback delivery	Available	There is ample opportunity to discuss all aspects of my job during / feedback meetings.
17	Feedback delivery	Participative	Feedback meetings give me an opportunity to express my views about the way my performance is measured.

#	Intervention component	Facet	Item
18	Feedback delivery	Participative	My view of my performance is considered during feedback meetings.
19	System commitment	Maintenance	My supervisor(s) openly support the way employees get information about their performance.
20	System commitment	Maintenance	This organization puts forth a great deal of effort to be sure that the performance management system.
21	System commitment	Training	I receive training on my role in our performance management
22	Feedback source	Credibility	The source of my feedback has a good understanding of the skills required to perform my job.
23	Feedback source	Credibility	[The source of my feedback] has adequate knowledge of my job and its performance standards.
24	Feedback source	Credibility	[The source of my feedback] maintains adequate performance records.
25	Feedback source	Supportiveness	During feedback meetings, [The source of my feedback] stresses problem-solving rather than criticism.
26	Feedback source	Supportiveness	The source of my feedback helps me to feel at ease during feedback / meetings.

Table 12
Descriptive scale statistics and intercorrelations for FIPS short form (Sample 2)

Scale	No. of Items	Mean	(SD)	1	2	3	4	5
1 Performance measurement	6	5.68	(1.14)	(.90)				
2 Feedback content	8	5.46	(1.14)	.85**	(.89)			
3 Feedback delivery	4	5.32	(1.26)	.68**	.77**	(.82)		
4 System commitment	3	5.04	(1.38)	.72**	.75**	.68**	(.78)	
5 Feedback source	5	5.55	(1.19)	.71**	.79**	.74**	.69**	(.87)

Note. N = 294. Correlations are among scales created from averaging items. Cronbach alpha coefficients reported on diagonal. ** $p < .001$.

Table 13
Descriptive statistics and intercorrelations for FIPS short form

Scale (# of items)	Mean (SD)	1	2	3	4	5	6	7	8	9	10
1 FIPS short form (26)	5.46 (1.08)	(.96)									
2 Accuracy (4)	5.21 (1.25)	.81**	(.95)								
3 Fairness (3)	5.23 (1.38)	.82**	.86**	(.94)							
4 Achievability (3)	5.33 (1.21)	.74**	.73**	.74**	(.90)						
5 Utility (6)	5.26 (1.32)	.82**	.76**	.78**	.83**	(.95)					
6 Satisfaction with FI (5)	5.11 (1.49)	.85**	.83**	.86**	.72**	.82**	(.95)				
7 Positive affectivity (6)	3.63 (1.00)	.67**	.69**	.66**	.57**	.64**	.69**	(.95)			
8 Negative affectivity (6)	1.79 (1.00)	-.63**	-.64**	-.65**	-.46**	-.58**	-.65**	-.65**	(.94)		
9 Job sat. 1 (5)	5.26 (1.35)	.56**	.50**	.54**	.44**	.56**	.51**	.54**	-.53**	(.88)	
10 Job sat. 2 (3)	5.58 (1.42)	.61**	.54**	.59**	.47**	.59**	.61**	.57**	-.49**	.88**	(.96)

Note. (N = 294) The alpha internal-consistency reliability coefficients appear in parentheses along the diagonal. * $p < .05$, ** $p < 0.001$.

Conclusion

The current study suggests the FIPS may be a valuable tool for researchers and practitioners. The ability of the FIPS to predict large amounts of variance in several feedback reactions and valued organizational outcomes may prove useful to theory building and testing. In practice, there are tremendous benefits of well-conceived and implemented performance management systems. Unfortunately performance management systems have a bad reputation and often fail. Perhaps the common perceptions that performance management systems are not useful may be eliminated if focus is shifted from the rating scale to the quality of feedback processes. This shift could begin by eliciting employee feedback about their feedback.

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