

**Mediating Role of Organisational Citizenship Behaviour in the  
Relationship between Feedback and Innovation Implementation**

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**Abstract:** The behavioural perspective of innovation implementation suggests that performance feedback reinforces the dynamics of implementation. However, little attention has been paid to understand the mechanisms through which feedback affects implementation effort. The purpose of this research was to test an explanation of the relationship between feedback and innovation implementation. Specifically, we tested the mediating role of organisational citizenship behaviour (OCB) in linking feedback and innovation implementation. Data were collected from supervisors and their subordinates involved in cardiac health services at five hospitals in Madrid Community (Spain). The findings indicate that feedback is a significant antecedent of OCB, and OCB is a significant antecedent of innovation implementation. The results also indicate that a positive relationship between feedback and innovation implementation is fully mediated by OCB. Feedback itself is less explicative in describing its effect on innovation implementation. Other mechanisms such as OCB can explain why feedback predicts innovation implementation. Organisations that provide feedback to their employees enable themselves to promote those behaviours which are useful for implementing change. Organisations need to establish a transparent, effective and considerate system of providing feedback to their employees. A good system of feedback cultivates positive behaviours which, in return, positively affect innovation implementation.

**Keywords:** *Innovation Implementation, Organisational Citizenship Behaviour, Feedback, Mediation.*

**Introduction**

It is generally believed that innovation is vital for improving organisational performance (Moreira et al., 2017; Prifti and Alimehmeti, 2017). However, innovation implementation is a well-recognized challenge for organisational managers (Klein and Sorra, 1996; Klein and Knight, 2005; Vezzoli et al., 2015). Existing literature has discussed many organisational antecedents of innovation implementation. For example; management's commitment and patience (Repenning, 2002; Baporikar, 2017; Engle et al., 2017), implementation policies (Klein et al., 2001), learning orientation (Calantone et al., 2002), climate for implementing innovation (Holahan et al., 2004) etc.

In his discussion of the behavioural basis for innovation implementation, Repenning (2002) suggested that feedback plays an important role in success or failure of implementation effort. Repenning (2002, p.113) proposed a reinforcement perspective whereby self-reinforcing feedback influences "the dynamics of implementation". The effects of feedback have greater importance for implementing innovative change in organisations (Barr and Conlon, 1994; Chirumalla, 2017). A fundamental effect of feedback is that it triggers prosocial effort (Layous et al., 2016) which is important for successful implementation (Damschroder et al., 2009).

Existing research has described a robust link between feedback and innovation implementation (West, 2002; Grimshaw et al., 2004, 2005; Torrey et al., 2012; Galindo and Méndez, 2014; Tuti, et al., 2017). However, little research has investigated the details of behavioural phenomena of the individuals involved in implementation process that may influence the decision to implement a new idea or practice (Eccles et al., 2009; Tuti et al., 2017). To our knowledge, little research has paid attention to testing why feedback is related to innovation implementation. The purpose of this research was to test an explanation of the relationship between feedback and innovation implementation by analysing what may occur within the behavioural process of implementation. Specifically, we tested a mediating role of organisational citizenship behaviour (OCB) in linking feedback and innovation implementation.

OCB refers to an “individual behaviour that is discretionary, not directly or explicitly recognized by formal reward systems, and that eventually promotes the effective functioning of the organisation” (Organ, 1988, p.4). The concept of OCB suggests that such discretionary behaviours of an employee may be essential for determining if any improvement in implementation process emerges from promoting these behaviours. We propose that a reason why feedback predicts innovation implementation is that feedback may promote in employees those behaviours which make them good citizens of an organisation. In turn, these citizenship behaviours may instigate the employees to put extra efforts in implementation process.

Limited research has reported the relationship between OCB and innovation implementation (Ehrhart et al., 2015). However, can OCB too provide clarification for why feedback predicts innovation implementation? To support the idea that OCB mediates the relationship between feedback and innovation implementation, we need to determine feedback as an antecedent of OCB, and OCB as an antecedent of innovation implementation.

## **Literature Review**

### **Feedback and Organisational Citizenship Behaviour**

Insights from Thorndike's law of effect (Thorndike, 1927) suggest that a positive feedback reinforces while a negative feedback punishes. Both reinforcement and punishment motivate behaviour and improve learning which lead to higher performance (Annet, 1969; Kluger and DeNisi, 1996; van den Boomen, and Peters, 2017; Bacon and Corr, 2017). In Thorndike's sense both positive and negative feedback improve performance because one encourages correct behaviours while the other discourages incorrect behaviours. In this sense, feedback is expected to promote correct behaviours toward goal achievement (London, 2003; Rosen et al., 2006; Ballard, et al., 2017).

Only a small number of studies have empirically examined the relationship between feedback and OCB (Vigoda-Gadot and Angert, 2007). Among the pioneer researchers in this area, Funderburg and Levy (1997) did not find a significant relationship between feedback and citizenship behaviour. However, in an examination of antecedents of citizenship behaviour, Podsakoff et al. (2000, p. 531) described that “ feedback and intrinsically satisfying tasks were positively related to citizenship behaviour ”. Taking insights from literature on substitutes for leadership Podsakoff et al. (2000) suggested that feedback, as an important task characteristic, was significantly related to five dimensions of organisational citizenship behaviour ; altruism, courtesy, conscientiousness, sportsmanship, and civic virtue. Klein (2003) also confirmed the association between feedback and employees' participation in positive behaviours. Bachrach et al. (2001) too found a positive relationship between feedback and helping behaviours in a work environment.

Theory and evidence suggest that feedback encourages employees to put extra effort in improving their task performance and citizenship behaviour (Vigoda-Gadot and Angert, 2007). Hence, our first hypothesis is:

**Hypothesis 1:** Feedback is positively related with organisational citizenship behaviour.

### **Organisational Citizenship Behaviour and Innovation Implementation**

Drawing on five dimensions of OCB (altruism, courtesy, conscientiousness, sportsmanship, and civic virtue), we suggested that OCB will be positively related to innovation implementation. Evidence from the OCB literature suggests that employees exhibiting OCB dimensions are more likely to have greater job involvement, and work for the benefit of their organisation (Ke and Wei, 2008; Mirzaee, and Beygzadeh, 2017). Altruism is a helping behaviour which allows co-workers to complete tasks cooperatively. Diffusion of innovation theory (Roger, 2010) suggests a problem-solving approach for achieving the goals of innovation implementation (Damschroder and Hagedorn, 2011). Innovation implementation demands co-workers to exhibit problem solving behaviours and avoid blaming behaviours (Bradley et al., 2006; Somech, and Drach-Zahavy, 2013) because many problems occur during this process (Durlak and DuPre, 2008). Turnipseed and Rassuli (2005) suggested that altruism predicts problem solving behaviours, and makes an employee avert work related problems with others. Altruistic employees are more likely to be effective in the complex process of innovation implementation (Pearce, and Ensley, 2004; Zahra et al., 2014).

Similarly, courtesy invigorates esprit d'corps among co-workers, and develops supportive and conflict resolving behaviours (Bell and Menguc, 2002; Aşkun, 2016). Implementation process involves problem identification which requires employees to be willing to raise problems during this process (Bradley et al., 2006). Raising problems, however, requires courteous communication with co-workers. Employees who perform courtesy are more likely to politely communicate work related problems, and develop positive interpersonal relationships. This, in turn, helps them sustain when there are challenges or setbacks in implementation process (Bradley et al., 2006).

Conscientiousness reflects a person's sense of responsibility toward obeying organisational rules, and performing his or her duties with punctuality and hard work (Yoon, 2009). Conscientiousness is associated with higher effort (Moore and Shute, 2017), and can be expected to positively influence implementation effort (Turban et al., 2009). In other words, conscientious employees are more likely to put effort toward innovation implementation.

Sportsmanship is an individual's disposition to tolerate inconveniences and work impositions without grumbling (Organ, 1988). People who perform sportsmanship have greater sense of sacrifice (Yoon, 2009). Implementation of innovation involves stressful situations (Yen et al., 2008), where sportsmanship can play a positive role. Employees' sense of sportsmanship is likely to increase their readiness to accept new responsibilities and cope with stress, and consequently enhances their organisation's ability to implement change (Yoon, 2009; Goksoy, 2017).

Innovation implementation requires the employees to actively participate, involve themselves in putting consistent effort, and align their behaviour with innovation (Bhattachryya et al., 2009; Fantini et al., 2012; Ma Prieto and Pilar Perez-Santana, 2014; Rangus and Slavec, 2017). Civic virtue builds an employee's commitment to organisation and generates positive behaviours toward work effort (Yen et al., 2008). The individuals who exhibit civic virtue are more likely to actively participate in coordinating work, promoting cooperation, and coping change during implementation (Podsakoff and MacKenzie, 1997; Yoon, 2009; Lines, and Selart, 2013). So, it can be expected that civic virtue will promote innovation implementation.

This discussion lends support to the idea that OCB positively affects innovation implementation. Therefore, we predicted the following hypothesis:

**Hypothesis 2:** Organisational citizenship behaviour is positively related with innovation implementation.

### **Organisational Citizenship Behaviour as Mediator**

In order to explain why feedback may influence innovation implementation through OCB, we adduced affective events theory (AET) (Weiss and Cropanzano, 1996) of emotions at workplace. Weiss and Cropanzano (1996) proposed both antecedents and outcomes of moods and emotions at work. They noted that “Certain work behaviours are direct responses to affective experiences. So, for example, mood influences helping behaviours” (Weiss and Cropanzano, 1996, p. 52). In their discussion of the role of moods and emotions in work settings, Fisher and Ashkanasy (2000, p.124) described that “jobs that are high in scope should more frequently produce events (instances of positive feedback, important goals successfully met, etc.) which lead to momentary positive emotions ( joy, happiness, pride)”. Taking insights from AET, Fisher and Ashkanasy (2000, p.124) further explained that “affective experiences may lead to spontaneous affectively-driven behaviour such as acts of good or bad citizenship”.

Following this line of reasoning, Belschak and Den Hartog (2009) suggested that feedback is likely to enhance an employee's “emotional attachment to, identification with, and involvement in the organisation” (Meyer et al., 2002, p.21, cited in Belschak and Den Hartog, 2009). This, in fact, is an individuals’ affective commitment with the organisation, and makes them to exhibit citizenship behaviours toward goal achievement (Shore and Wayne, 1993; Carmeli and Colakoglu, 2005). Based on House and Mitchell’s (1975) insights, Erkutlu and Chafra (2015, p.5) suggested that employees with affective commitment “are more likely to respond to change initiatives and accept the change message”. Therefore, feedback may be related to innovation implementation because feelings of affective commitment resulting from performance feedback can motivate an employee’s attachment to the organisation, and this attachment may prompt her/him to put extra effort toward innovation implementation (Michaelis et al., 2009; Van der Voet et al., 2016)

In addition, the emotional aspect of feedback may also affect behavioural intentions of an individual toward using a new technology or practice (Terzis et al., 2012). Using insights from theory of reasoned action (Fishbein and Ajzen, 1975, p.249), Webb and Sheeran (2006) suggested that “intention is the most immediate and important predictor of behaviour ”. Among other personal phenomena, self-efficacy plays an important role in transforming intention into behaviour (Webb and Sheeran, 2006). Feedback not only promotes behavioural intentions, but also enhances self-efficacy beliefs which are likely to immediately transform intentions into execution of actions (Bandura, 1998; Gómez-Zúñiga et al., 2015). We assumed that performance feedback will develop employees’ intentions in the direction of exhibiting those behaviours (such as citizenship behaviours) which are useful for implementing innovation.

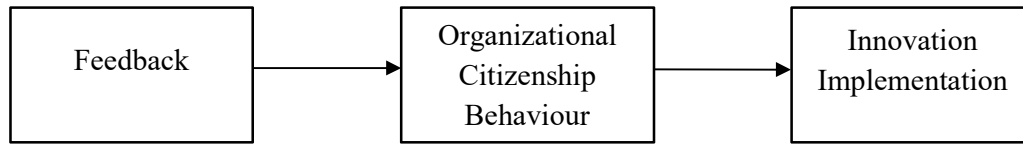
Moreover, innovation implementation requires employees to deviate from status quo towards change adoption. It is a matter of broadening their “momentary thought-action repertoire”(Belschak and Den Hartog, 2009, p. 281). Positive feelings resulting from positive feedback are important source of broadening a person’s thought-action repertoire (Fredrickson, 2001; Belschak and Den Hartog, 2009). We suggest that positive feedback to employees will allow them to shift their attention from current task to engage in altruistic behaviour toward adherence to change in practice (Zahra et al., 2014).

In order to ascertain whether the link between feedback and innovation implementation is mediated by OCB, we examined the following:

**Hypothesis 3:** Organisational citizenship behaviour mediates the relationship between feedback and innovation implementation.

Figure 1 shows our theoretical model.

Figure 1. Theoretical model



## Methodology

The research philosophy used in this research is based on positivism where existing theory is used for developing hypotheses and, later on, these hypotheses are tested for further development in theory (Saunders et al., 2009). Following this philosophy, Hypothetico-deductive approach was used. Ratings of study sample were obtained in a questionnaire survey, which was based on “a single data collection technique and corresponding analysis procedures (mono method)”, as described in Saunders et al. (2009, pp.151). A cross sectional survey design was used. The principles of partial least squares structural equation modelling (PLS-SEM) were used for data analysis.

## Sample

Data were collected from employees and their supervisors involved in cardiac health services for patients with acute myocardial infarction (AMI) at five hospitals in the Madrid Community (Spain). These organisations were selected because Madrid health authorities emphasize on using innovative and evidence based practices (EBPs) for reducing treatment time in patients with acute heart attack. So, these organisations provide suitable settings for this research because the employees could be asked about the implementation of innovative practices for reducing reperfusion time in patients with acute myocardial infarction.

The criteria for selecting these organisations were based on their ability to treat the patients undergoing primary angioplasty. The settings were 24/7 PCI (percutaneous coronary intervention) capable large hospitals with 2-3 Cardiac Catheterization Labs (CCLs) and more than five interventional cardiologists in each hospital. On average each hospital performs 200 or more primary PCIs per annum.

At the time of study survey, there were 344 AMI related employees in selected hospitals; each working under a supervisor. So, we were to select sample from above mentioned employees. According to Hair et al.'s (2014, p.21) recommendations, a suitable sample size is 189 when maximum number of indicators of a construct are 10 (OCB in our model), and the researcher requires a minimum  $R^2$  equal to 0.1 at a 5% significance level. Looking at this recommended sample size, we decided to conduct survey of a larger number of employees because the response rate is rarely 100%, and the issue of missing values is almost always there. So, we used simple random sampling method, and distributed questionnaires to 280 randomly selected subordinates for measuring feedback and innovation implementation. The respective supervisors were asked to provide ratings of these 280 subordinates' OCB.

Of the 280 questionnaires sent to subordinates, 231 were returned (82.5%). The supervisors returned questionnaires for 219 subordinates (78%). Overall, the response rate is high, which may be due the Spanish Cardiology Society's request to the hospitals for participating in study survey. The Society's support should be seen as a motivating factor, and not an influence on respondents. Moreover, the existing literature suggests that the researchers should not devote much attention to response rate biases (Cull et al., 2005).

We used responses only from those subordinates for whom the supervisor ratings were received. After omitting list wise missing values, 212 responses matched ratings of subordinates and supervisors (75%). In the final sample of 212 subordinates, 43% were male;



the mean age was 38 years, the mean years of experience were 8.4. These 212 matched responses represented 86% supervisors. Fifty nine percent of the supervisors were male.

## **Measures**

### *Innovation Implementation*

Innovation implementation was measured by adopting evidence based practice (EBP) questionnaire developed by Upton and Upton (2006). EBP is an innovative practice which clinicians use for improvement in patient treatment (Palinkas et al., 2017). Upton and Upton's (2006) questionnaire contains 24 items which were divided in three subscales ('practice of EBP' subscale, 'attitude towards clinical effectiveness/EBP' subscale, and 'knowledge/skills associated with EBP' subscale). Of the 24 items, 6 are related to practice or use of EBP (Rice et al., 2010). We adopted these six items as reflective measures of innovation implementation (see table 1). This measure used a response scale of 1-5 (1=never, 2 = rarely, 3=occasionally, 4 =often, 5=very frequently).

### *Feedback*

Feedback was measured using 2 item scale reported in Pousette and Jacobsson (1999). Respondents were asked to rate the frequency of positive and negative feedback (respectively) provided by their organisation about their job performance. The questions were: "How often does your organisation let you know that you do your job well?" and "How often does your organisation let you know that you do your job insufficiently well?" The response option for this measure ranged from 1 to 5 (1=never, 2 = rarely, 3=occasionally, 4 =often, 5=very frequently).

### *Organisational Citizenship Behaviour*

Organisational citizenship behaviour was assessed for each subordinate by his or her supervisor with a ten-item scale used by Pearce and Gregersen (1991). They computed Cronbach's alpha of 0.92 for this scale. Response choices ranged from 1 (strongly disagree) to 5 (strongly agree).

## **Data Analyses Procedures**

Data were analysed by using partial least square structural equation modelling (PLS-SEM) in SmartPLS 3.2.6 software (Ringle et al., 2005). PLS approach to SEM is a component based procedure of estimating complex relationships in structural models (Tenenhaus, 2008). PLS path model is an iterative algorithm that, in first step, solves the measurement model by testing validity and reliability of items and constructs, and then the structural model validates the relationships developed in hypotheses.

## **Results and Discussion**

### **Evaluation of Reflective Measurement Model**

Evaluation of reflective measurement model involves testing internal consistency reliability, convergent validity, and discriminant validity (Hair et al., 2014). Internal consistency reliability determines how well the indicators (items) of a latent variable measure the same idea (Hair et al., 2014). Traditionally Cronbach alpha is used for testing this reliability. An alpha above 0.70 reflects higher internal consistency reliability. PLS-SEM provides composite reliability as a different but better measure of this reliability test (Hair et al., 2014). Its values between 0.70 and 0.90 are considered acceptable (Nunally and Bernstein, 1994). Table 1 shows that values of both Cronbach alpha and composite reliability fulfil reliability criteria.

"Convergent validity is the extent to which a measure correlates positively with alternative measures of the same construct" ( Hair et al., 2014, p.102). At indicator level, convergent validity is established through outer loadings of the indicators. As a common rule of thumb, an indicator or item is reliable when its outer loading with associated construct approaches or exceeds 0.708.

Table 1. Evaluation of measurement model

Construct	Item	Indicator	$\lambda^a$	$\alpha^b$	CR <sup>c</sup>	AVE <sup>d</sup>
Innovation Implementation (InnImp)	How often have you formulated a clearly answerable question as the beginning of the process towards filling the gap between an innovative practice and your current practice?	InnImp1	0.87	0.93	0.89	0.73
	How often have you tracked down the relevant innovative practice once you have formulated the question?	InnImp2	0.88			
	How often have you critically appraised, against set criteria, any literature you have discovered?	InnImp3	0.86			
	How often have you integrated the innovative practice you have found with your expertise?	InnImp4	0.78			
	How often have you evaluated the outcomes of that innovative practice?	InnImp5	0.85			
	How often have you shared this innovative practice with colleagues?	InnImp6	0.87			
Organisational Citizenship Behaviour (OCB)	This employee Attends nonrequired training or educational sessions on own time.	OCB1	0.88	0.95	0.90	0.70
	Makes especially helpful suggestions to improve the organisation.	OCB2	0.86			
	Works before or after regular working hours in order to finish a task.	OCB3	0.86			
	Standards of work quality are higher than the stated standards.	OCB4	0.87			
	Actively and constructively seeks to get his or her suggestions adopted by the organisation.	OCB5	0.78			
	Orients new people even though it is not required.	OCB6	0.87			
	Makes special attempts to gain more knowledge about job-related techniques and skills.	OCB7	0.77			
	Attends functions that are not required, but that help this organisation.	OCB8	0.84			
	Goes out of his or her way to help others with job-related problems.	OCB9	0.81			
	Looks for additional responsibilities and/or tasks despite the fact that it increases his or her work load.	OCB10	0.79			
Feedback (FB)	How often does your organisation let you know that you do your job well?	FB1	0.93	0.82	0.88	0.85
	How often does your organisation let you know that you do your job insufficiently well?	FB2	0.92			

<sup>a</sup> Factor/outer loadings; <sup>b</sup> Cronbach's alpha; <sup>c</sup> CR = composite reliability; <sup>d</sup> AVE = average variance extracted

Note: The factor loadings in above table have been reported from PLS algorithm execution where all variables are present in the model.

Results in table 1 indicate that outer loadings of all items on all constructs are higher than 0.708. At construct level, convergent validity is determined through average variance extracted (AVE). An “AVE value of 0.50 or higher indicates that, on average, the construct explains more than half of the variance of its indicators”(Hair et al., 2014, p. 102). Table 1 shows that AVE of all constructs is higher than 0.50.

Discriminant validity assesses that the measures of one construct do not correlate with other constructs (Ringle et al., 2010). It is evaluated through two approaches. In first approach, “the indicators’ cross-loadings are examined which reveal that no indicator loads higher on the opposing endogenous constructs” (Ringle et al., 2010. p.37). In order to evaluate the

construct validity of our model, we obtained cross loadings after PLS algorithm was run in the software. The cross loadings meet the construct validity criterion (see table 2).

*Table 2: Cross Loadings*

	<b>Feedback</b>	<b>Innovation Implementation</b>	<b>OCB</b>
FB1	<b>0.93</b>	0.54	0.65
FB2	<b>0.92</b>	0.54	0.61
InnImp1	0.56	<b>0.87</b>	0.650
InnImp2	0.52	<b>0.88</b>	0.64
InnImp3	0.47	<b>0.86</b>	0.58
InnImp4	0.56	<b>0.78</b>	0.69
InnImp5	0.45	<b>0.85</b>	0.73
InnImp6	0.43	<b>0.87</b>	0.69
OCB1	0.57	0.76	<b>0.88</b>
OCB2	0.61	0.75	<b>0.86</b>
OCB3	0.55	0.74	<b>0.86</b>
OCB4	0.72	0.67	<b>0.87</b>
OCB5	0.56	0.62	<b>0.78</b>
OCB6	0.51	0.64	<b>0.87</b>
OCB7	0.42	0.50	<b>0.77</b>
OCB8	0.54	0.64	<b>0.84</b>
OCB9	0.61	0.55	<b>0.81</b>
OCB10	0.55	0.61	<b>0.79</b>

Note: FB = Feedback; InnImp = Innovation Implementation; OCB = Organizational Citizenship Behaviour

In second approach, applying Fornell and Larcker (1981) criterion, the square root of each endogenous construct's average variance extracted (AVE) is compared with its bivariate correlations with all opposing endogenous constructs (Grégoire and Fisher, 2006). Discriminant validity exists if square root of AVE for each construct is greater than the values of its bivariate correlations (Ringle et al., 2010). The correlation of latent variables in table 3 provides evidence that the constructs are distinct from each other.

*Table 3: Correlation of latent variables (Fornell and Larcker's criterion)*

	<b>Feedback</b>	<b>Innovation Implementation</b>	<b>OCB</b>
<b>Feedback</b>	<b>0.92<sup>a</sup></b>		
<b>Innovation Implementation</b>	0.59 <sup>b</sup>	<b>0.85</b>	
<b>OCB</b>	0.68	0.78	0.83

<sup>a</sup> The square roots of shared variance between the construct and their measures is provided in diagonal

<sup>b</sup> Off diagonal elements are the Pearson Correlations between different constructs



The above methods for establishing discriminant validity have been considered insufficiently sensitive to detect discriminant validity, and a more sensitive new criterion named as Heterotrait-Monotrait Ratio of Correlations (HTMT) has been introduced in literature (Henseler et al., 2015). So, we used this criterion also for establishing discriminant validity between constructs. Using more conservative approach (considered as the strictest criterion), HTMT value between two constructs must be less than 0.85 (HTMT<sub>0.85</sub>). Table 4 shows that all HTMT values between constructs are below 0.85. So, according to HTMT<sub>0.85</sub>, discriminant validity has been established.

*Table 4. Heterotrait-Monotrait Ratio (HTMT)*

	Feedback	Innovation Implementation	OCB
Feedback			
Innovation Implementation	0.67		
OCB	0.76	0.82	

### **Evaluation of Structural Model**

Figure 2 shows the estimated structural model from PLS-SEM analysis. Following Hair et al. (2014) two separate models were estimated to determine the mediating role of OCB in the relationship between feedback and innovation implementation. Model A assessed the direct relationship between feedback and innovation implementation, while model B evaluated the indirect effect through OCB. Bootstrapping with 5000 samples was used for testing significance of causal relationships. PLS-algorithm was used to estimate standardized path coefficients ( $\beta$ ) and coefficients of determination ( $R^2$ ). Path coefficients describe the dimension of causal relationships, while  $R^2$  determines the variance in endogenous variable explained by exogenous variables. In our model A, the value of  $R^2$  (0.35) indicates that 35% of variance in innovation implementation is explained by feedback, while  $R^2$  (0.62) in model B shows that 62% of variance in innovation implementation is explained by OCB as a consequence of feedback. As a predefined rule, higher values of  $R^2$  indicate higher predictive accuracy of model (Hair et al., 2014). In our case, including OCB as mediator increased predictive accuracy of model from 35% to 62%.

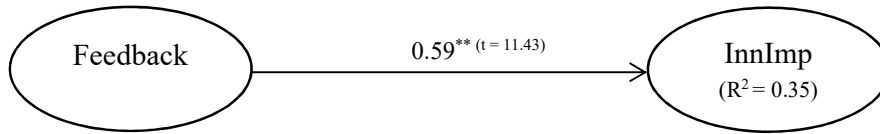
The second condition (necessary but not sufficient) is that each individual relationship (i.e. path from feedback to OCB and path from OCB to innovation implementation) be significant. In our mediation model B the relationship between feedback and OCB ( $\beta = 0.68$ ,  $t = 14.2$ ,  $P < 0.01$ ) and also between OCB and innovation implementation ( $\beta = 0.72$ ,  $t = 10.50$ ,  $P < 0.01$ ) is significant.

The third condition is that the indirect effect through the mediating variable (the entire path from feedback to OCB to innovation implementation) must be significant after including mediator in PLS model. The indirect effect size is measured by multiplying the coefficients of individual paths (feedback to OCB and OCB to innovation implementation). From model B in figure 2 we multiplied the coefficients of both paths ( $0.68 \times 0.72 = 0.49$ ). The product of both coefficients shows a positive indirect link. Hair et al. (2014) suggested that the significance of indirect effect can be tested by using path coefficients for each of 5000 samples in bootstrapping procedure. The product of each sample's path coefficients for both relationships (feedback to OCB and OCB to innovation implementation) and standard deviation were calculated by using spreadsheet in MS-Excel (SmartPLS 3.2.6 directly calculates these values). The value of standard deviation was calculated as 0.054. According to Hair et al., (2014), the empirical t-value of indirect effect is calculated after indirect effect size is divided by the standard deviation ( $0.49/0.054 = 9.07$ ). This t-value shows the

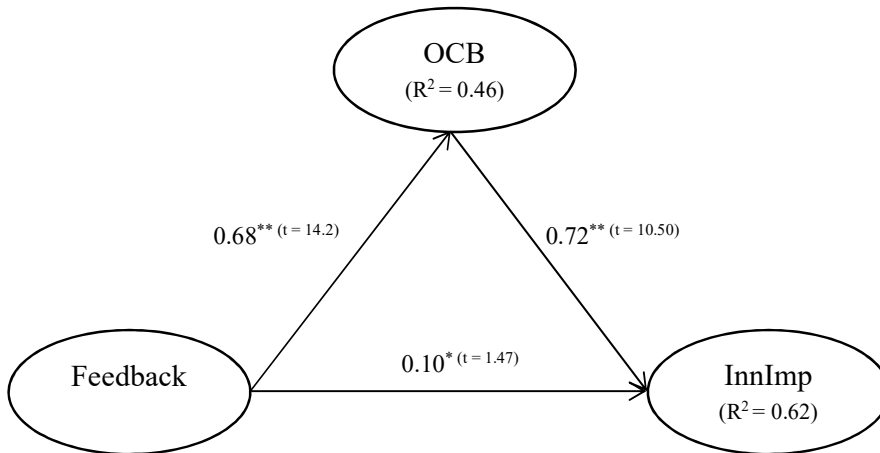
significance of indirect relationship at  $p < 0.01$ . It means the mediator (OCB) absorbs some of the direct effect (path from feedback to innovation implementation).

Figure 2: Estimated PLS path model with direct and mediation effect

**A. Direct effect**



**B. Indirect (mediation) effect**



Note: \*\* $p < 0.01$ ; \*  $P < 0.10$ ; InnImp = Innovation Implementation; OCB = Organisational Citizenship Behaviour

The fourth condition is that the previously significant relationship between independent and dependent variable (feedback to innovation implementation) must significantly change its value in the presence of mediator. Model B in figure 2 indicates that, by including mediator in the model, the value of path coefficient reduced significantly, from 0.59 to 0.10. However, the significant relationship between feedback and innovation implementation in model A ( $p < 0.01$ ) became insignificant in the presence of mediator in model B ( $t = 1.47$ ,  $p < 0.10$ ). The significance of feedback and innovation implementation relationship in model A (but insignificance of this relationship in model B), and a considerable reduction in path coefficient for this relationship in model B indicate a situation near to full mediation (Baron and Kenny, 1986).

In addition to this, variance accounted for (VAF) was calculated to assess the strength of mediation effect. Hair et al. (2014) suggested calculation of VAF instead of applying a commonly used Sobel (1982) test because the distributional assumptions of Sobel test do not hold for indirect effect, and it lacks statistical power. Calculating VAF is considered only if indirect effect is significant. As already indicated, this indirect effect is significant in our model ( $t$ -value = 9.07 or  $p < 0.01$ ). VAF determines the size of indirect effect (0.49) in relation to total effect (direct effect + indirect effect, which is  $0.10 + 0.49 = 0.59$ ):  $VAF = 0.49/0.59 = 0.83$ . VAF above 80% indicates full mediation (Hair et al., 2014), which is the case in our model.

After assessing the strength of mediation effect we measured the  $f^2$  effect sizes. The  $f^2$  effect size is a relative measure of impact of exogenous variable on endogenous variable, and

indicates 0.02, 0.15, and 0.35 as small, medium, and larger effects respectively (Hair et al., 2014). It is calculated by using following formula (Hair et al., 2014).

$$f^2 = R^2_{\text{included}} - R^2_{\text{excluded}} / 1 - R^2_{\text{included}}$$

The relative impact of our mediator variable on innovation implementation is 0.71 [(0.62 – 0.35) / (1 – 0.62)], which is considered as large effect (Cohen, 1988). Following the same process, relative impact of independent variable (feedback) on dependent variable (innovation implementation) was calculated as 0.03 (table 4), which is a small effect.

Finally, the predictive accuracy of endogenous latent variable was evaluated by using Stone-Geisser's Q<sup>2</sup> values (Geisser, 1974; Stone, 1974). Q<sup>2</sup> values were obtained through blindfolding procedure in SmartPLS 3 (Chin, 1998). The Q<sup>2</sup> value indicates the predictability of path model for the originally observed values (Hair et al., 2014). Using cross-validated redundancy approach, we obtained Q<sup>2</sup> values for endogenous variable (innovation implementation) with and without mediator (OCB), and also with and without independent variable (feedback). Hair et al. (2014, p.178) suggested that “Q<sup>2</sup> values larger than zero for a certain reflective endogenous latent variable indicate the path model's predictive relevance for this particular construct”. Table 4 shows that Q<sup>2</sup> values are considerably above zero.

Table 4: Summary of f<sup>2</sup> and q<sup>2</sup> results

Endogenous latent variable	OCB construct			FB construct		
	R <sup>2</sup> <sub>excluded</sub>	R <sup>2</sup> <sub>included</sub>	f <sup>2</sup> (OCB - >InnImp)	R <sup>2</sup> <sub>excluded</sub>	R <sup>2</sup> <sub>included</sub>	f <sup>2</sup> (FB -> InnImp)
	0.35	0.62	0.70	0.61	0.62	0.03
Innovation implementation	Q <sup>2</sup> <sub>excluded</sub>	Q <sup>2</sup> <sub>included</sub>	q <sup>2</sup> (OCB - >InnImp)	Q <sup>2</sup> <sub>excluded</sub>	Q <sup>2</sup> <sub>included</sub>	q <sup>2</sup> (FB -> InnImp)
	0.23	0.42	0.31	0.40	0.42	0.02

We used these Q<sup>2</sup> values to calculate the q<sup>2</sup> effect size. The q<sup>2</sup> effect size is a relative measure of an exogenous variable's predictive relevance for a certain endogenous variable (Hair et al., 2014). The procedure of computing and interpreting q<sup>2</sup> is analogous to the procedure used for calculating f<sup>2</sup>. The q<sup>2</sup> values in table 4 show that our mediator's predictive relevance for innovation implementation is medium (q<sup>2</sup> = 0.31), while feedback's predictive relevance for innovation implementation is very small (q<sup>2</sup> = 0.02).

## Conclusion

The objective of this study was to examine an explanation for why feedback affects innovation implementation. We analysed whether feedback influences innovation implementation by affecting the degree to which an individual exhibits citizenship behaviour, and whether these behaviours prompt innovation implementation. Our results provide support for a relationship between feedback and citizenship behaviours. This finding is consistent with Podsakoff et al. (2000) and Bacharach et al. (2001) who found that feedback positively predicts five dimensions of OCB. The results also support the relationship between citizenship behaviours and innovation implementation. This result is also consistent with the existing theoretical insights regarding OCB's each dimension's relationship with innovation implementation (Ke and Wei, 2008; Turban et al., 2009; Somech, and Drach-Zahavy, 2013; Aşkun, 2016; Moore and Shute, 2017).

By incorporating the mediating variable, we observed a strong support for a fully mediated model of the relationship between feedback and innovation implementation. Our research concludes that feedback itself is less explicative in describing its effect on innovation

implementation. Other mechanisms such as OCB can explain why feedback predicts implementation of innovation.

The findings of mediating hypothesis are in line with the theoretical insights that feedback leads to employee's affective commitment with the organisation, and this affective commitment produces employees' acceptability to change initiatives (Belschak and Den Hartog, 2009; Erkutlu and Chafra, 2015). The results also confirm that feedback helps improve employee self-efficacy which develops those behaviours which are important for executing action for innovation implementation (Fishbein and Ajzen, 1975; Bandura, 1998; Webb and Sheeran, 2006; Gómez-Zúñiga et al., 2015).

Given that less is known about why feedback predicts innovation implementation, our research made three valuable theoretical contributions. First, we found a strong support for a mediator in the relationship between feedback and innovation implementation. By analysing OCB as a mediator we commenced to investigate precisely why and how feedback acts as a predictor of innovation implementation. We found that when organisations provide feedback to their employees they enable themselves to promote those behaviours which are useful for implementing change. Employees equipped with citizenship behaviours are more likely to be optimistic toward using new evidence. Given that the underlying mechanisms in the relationship between feedback and innovation implementation are relatively less explored, rationalizing OCB as a mediating variable is a good addition in existing body of knowledge.

Our second contribution is that after a scholarly discussion on the effect of five dimensions of OCB on innovation implementation, we provided theoretical reasoning as to why OCB relates to innovation implementation and mediates the relationship between feedback and innovation implementation. Our research also provides an empirical evidence on this relationship. Third, we provided theoretical argument and added empirical evidence for the existing but limited research on the relationship between feedback and OCB.

### **Practical Implications**

Given the usefulness of feedback for implementing innovation, organisations need to establish a transparent, effective and considerate system of providing feedback to their employees at all levels. A good system of feedback will cultivate positive behaviours in employees. Moreover, the findings of our research indicate that citizenship behaviours of organisational members will positively affect innovation implementation. This finding indicates that healthcare organisations should promote such behaviours in their members if they want successful implementation of innovation. Our research suggests that feedback is a relatively less expensive source of promoting citizenship behaviours, and must be taken into account for readiness to implement change. However, feedback is not the only source of promoting such behaviours. Organisations can also use other sources such as establishing an organisational justice system (Moorman, 1991), increasing perceptions of organisational support (Moorman et al., 1998), following transformational leadership style (Podsakoff et al., 1997) etc.

Our discussion on the dimensions of OCB highlights the importance of individual behaviours for implementing innovation. This discussion has important implications for human resources managers. The most important is that business organisations that believe in continuous research and its implementation into practice must adopt soft skills oriented practices along with technical skills. Organisations need to continuously follow those practices which keep their members' esprit d'corps high. Providing performance feedback is one way to do so.

To establish argument for OCB as a mediator, we discussed two different strands of literature. First, the emotions school draws organisational managers' attention toward considering their team's emotions at work. Emotions, in their own sense, can be an effective tool for managing team's efforts toward a specific direction, i.e. goal achievement. Recent discussion on this topic suggests that regulating emotions can help individuals and

organisations achieve their goals and well-being (Wong et al., 2016). It, however, is a challenge for organisational managers to understand the emotional cues of their teams and individual members, and guide their behaviour. Appropriate way of using performance feedback can help managers in this regard.

Second, the intention-behaviour school suggests that in order for an action to be completed, there must be an intention, and that intention must be transformed into behaviour. Managers using feedback in a suitable manner can regulate the intention-behaviour path, specifically, if they can effectively use feedback for promoting employees' self-efficacy and broadening their thought-action repertoire. However, it requires the concerned organisations to develop people skills in their leaders.

### **Limitations and Future Research**

Despite its theoretical and practical implications, our research does have some limitations. First, by using cross-sectional data rather than designing experimental or longitudinal research, we limited our ability to draw true causal inferences. Future research would take an advantage of using experimental or longitudinal design to test more robust causal inferences. Second, our sample was from cardiology centers of hospitals in Madrid community, and this context may be idiosyncratic enough to restrict the external viability of our results. Third, supervisors' rating of more than one employees might have created systematic variance into the ratings of OCB.

While theory and evidence support our conceptual model, we cannot ignore other possible illustration of our results. For instance, employees who are more inclined toward innovation implementation or frequently exhibit citizenship behaviours may be more likely to receive frequent feedback from their organisation. Since Organ (1988) developed the concept of citizenship behaviour to delineate the social exchange process, we recognize that the process may be reciprocal. One recommendation for future scholars is to establish and examine a more comprehensive characterization of the viable antecedents of citizenship behaviours and to also discover the level of mutual cause effect relationship.

### **Acknowledgement**

The authors are very thankful to Dr. Carlos Macaya (Ex-president, Spanish Society of Cardiology), Dr. Antonio Fernandez-Ortiz (Head of interventional cardiology at Hospital Clínico San Carlos, Madrid) and Dr. Javier Goicolea (Head of interventional cardiology at Hospital Puerta de Hierro, Madrid) who encouraged and provided us with an opportunity to conduct this research in the most valuable healthcare organisations in Madrid Community of Spain.

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