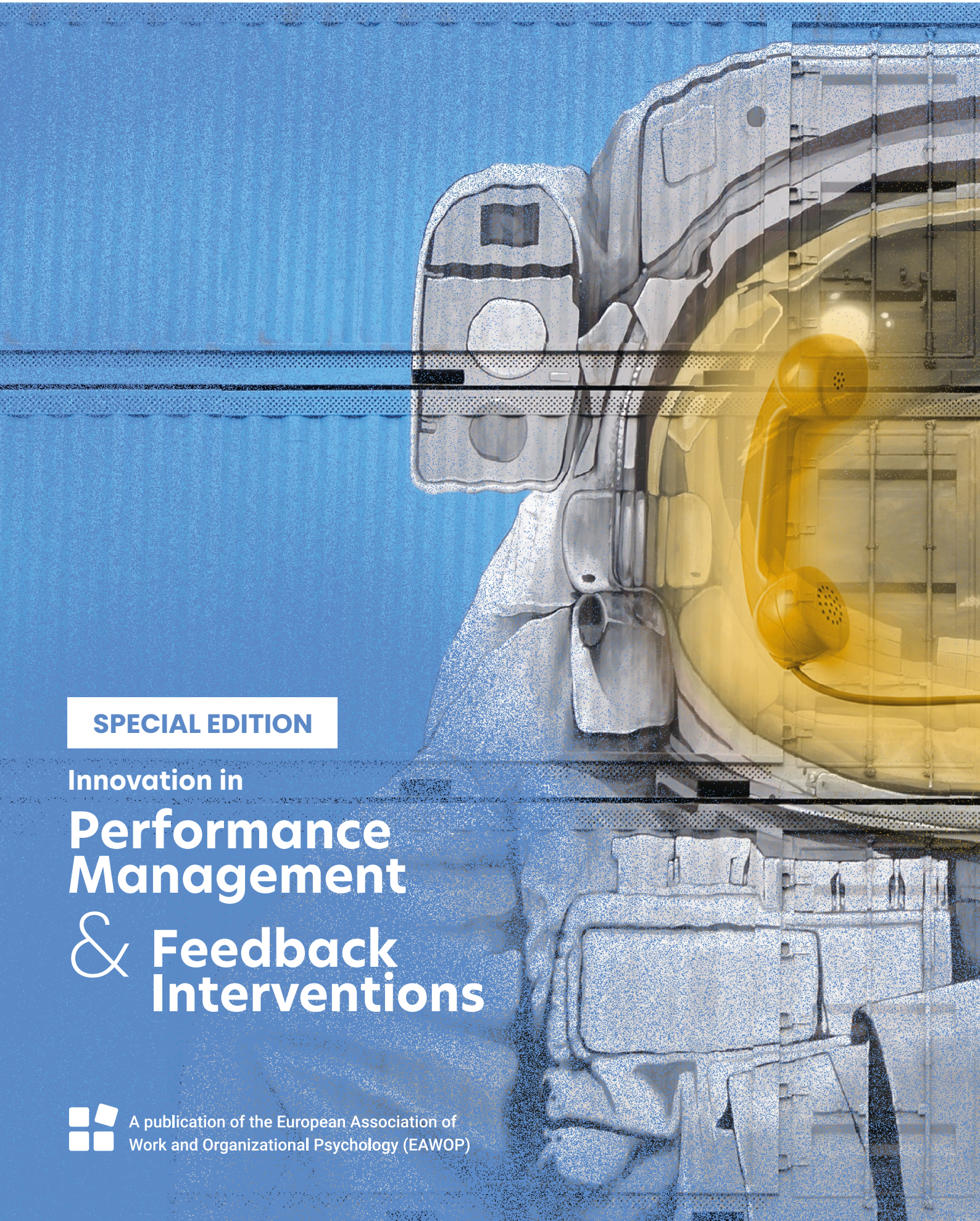
.EPRACTICE
THE EAWOP PRACTITIONERS E-JOURNAL

2020
Issue 14



SPECIAL EDITION

Innovation in Performance Management & Feedback Interventions

A publication of the European Association of Work and Organizational Psychology (EAWOP)

Issue 14/2020

InPractice 2020 Issue 14
Editorial

Researchers and practitioners in Work and Organizational Psychology (WOP) have devoted decades to understanding and developing performance management systems in organizations. The term performance management (PM) refers to organizational interventions or activities aimed at improving individual, group, or organizational performance, for example, via goal setting, feedback, and reward systems. Many organizations, including global players like Deloitte, Accenture, or Adobe are turning away from formal performance management systems towards more informal processes such as instant performance feedback. Some argue that performance management has failed, because in many ways it has been reduced to prescribed steps within formal administrative systems. Research in WOP and management shows that PM systems can be effective if they rely on the participation of the different stakeholders in defining performance criteria as well as on regular feedback based on those criteria.

In this Special Edition of InPractice we would like to shed some light on the practical application of both innovative and evidence-based PM systems and their effects on performance, health, and organizational success. We are more than happy to present authors from both Europe and the U.S. using approaches that are closely related and rooted in WOP research.

In our focal article we are delighted to present a paper by Robert D. Pritchard and Natalie Wright on the 10 biggest problems in PM and how to avoid them in practice. Bob Pritchard has influenced research in motivation, productivity, and performance management over the last five decades. His worldwide research programme on the ProMES methodology is one of the most striking contributions of WOP in practice. We had the chance to talk to Bob Pritchard about the 10 issues they came up with:

> **C: Bob, tell me more about the reason, why you and Natalie decided to write the article.**

B: The background is that the 10 problems we're addressing here are fairly obvious. But in my experience, they are commonly done badly in organizations. I don't know of a single organization that I've worked with in the past 50 years that would initially get good scores on all of these 10 problems. The question that we're trying to answer here is what are the

most important issues that need to be addressed in order to do a good job in performance management.

> **C: The first issue that you're addressing in the article is that measures of individual, or team performance are rarely tied to broader organizational objectives. Why is it important and what can we do about it?**

B: There has to be a line of sight from performance measures to meeting organizational objectives. The test I use is quite simple. Ask yourself: if this measure got better and better, will organizational objectives be met better and better? If those measures are not aligned with organizational objectives, you will improve things that will not help the organization to improve. The nice thing about this particular problem is that it is fairly easy to resolve, at least once the organization's objectives are actually clear. What you need to do is first to make sure that the broader organizational objectives are clear, and if they're not then they need to be made clear. You then start with the specification of those organizational objectives. Then ask organizational personnel whether improving the measures used will, in fact, meet the organizational objectives. This takes some time, but it is not usually that difficult.

> **C: I come across this issue quite often, and when I tell management that I cannot continue working with the group until organizational strategies and objectives are made clear I often get the feedback, that this is work in progress and can be done later. How would you convince them that they should work on their strategy first?**

B: I think the answer to that is quite simple. How can you make sure that the team is defining the 'right' objectives when they aren't tied to organizational goals? In a worst-case scenario, they are producing results that have no value to the organization.

> **C: That's a good point. And this would mean sunk costs and then you're talking management language.**

B: Exactly.

> **C: You said, this first problem is a fairly simple issue. What is a more complicated problem?**

B: If I had to say what is the single most important problem that performance management systems had worldwide it will be this: People are being held accountable for things they cannot control.

C: This can be very frustrating, right?

B: Oh yeah, this will definitely not help to stimulate motivation. People are being evaluated on things they have no influence on. This will often decrease motivation.

C: Why is it then done so frequently?

B: Well, it's very easy to develop bad measures. Whereas, as you know from using ProMES, it takes a lot of effort to develop good measures of performance. What you do in ProMES, you ask the question to the group or the individual worker, how much control do you have over this measure? If you put in more effort into improving it, are you able to change that measure? If the answer is no, you have to figure out what the factors are that influence that measure. Lack of control comes from factors influencing the measure that unit personnel cannot influence, such as cost of materials, maintenance in the equipment, and number of customers. If you have a good picture of the factors that determine the measure you can change the measure to eliminate or reduce the effects of these uncontrollable factors. It takes a lot of work and thought to go through this process.

C: And what happens if you don't do this?

B: Well, then you're not getting the good results that you want.

The full interview can be downloaded as a podcast on the InPractice website.

The second article by Brandon Young and Barbara Fritzsche discusses the development and validation of a scale that measures individual perceptions of feedback interventions. The Feedback Intervention Perceptions Scale (FIPS) evaluates the characteristics of five feedback intervention components such as Performance Measurement, Feedback Content, or Feedback Delivery. Results indicate that the measure has good psychometric properties and support the utility of the FIPS for both research and practice. A short form of the FIPS and preliminary validity evidence is also presented.

Judgements and ratings are always subject to errors and social judgement, especially when they are applied in annual performance reviews. Even if defined procedures and rating standards are in place, managers' ratings of their employees will invariably be coloured by their subjective impression of the last few days, or weeks maybe. This results in inconsistent and unequal judgements. Roman Soucek and Annika Rupprecht have investigated the effects of day-to-day, or instant feedback on work engagement. Especially in virtual, flexible, and self-determined working environments, day-to day

supervisor feedback is gaining in importance, as feedback can be a powerful job resource and thus a key driver of work engagement. The paper gives valuable insight into a diary study that examines the contribution of supervisory feedback to job resources and work engagement, and thereby, differentiate between face-to-face feedback and computer-mediated feedback. The results substantiate the effectiveness of supervisor feedback on job resources, which in turn, contribute to work engagement.

Most modern work forms require group work. This means that it is often difficult or even impossible to tease out an individual's specific output or performance within a group. Hence, measuring individuals' performance in a context where they are interdependent with others and, therefore, don't have full control over their own performance a) will be perceived as unfair and b) will not lead to performance improvements given that feedback at the individual level will not automatically lead to improvements at the group level. I, Moritz Reichert, and Sabrina Ulrich present an interesting piece of applied WOP dealing with this issue. We applied the Productivity Measurement and Enhancement (ProMES) in a private hotel and investigated its long-term effects on team and individual outcomes. In line with their expectations, multi-level analysis confirmed a positive relationship between ProMES feedback and job crafting behaviours. The introduction of ProMES revealed significant and sustainable gains in productivity over a period of more than four years.

We offer you best wishes and good health for the rest of the year 2020. We look forward to seeing you at this year's WorkLab which will be a virtual event from November 12-13, 2020. We will have an excellent programme that will be delivered in three virtual sessions over the two days. We will focus on the challenges that the global pandemic has put on the way we work. You can find more details on the EAWOP Website.

#staysafe

– Colin Roth

DR. COLIN ROTH, SPECIAL EDITION EDITOR
colin.roth@blackboxopen.com

DR. DIANA RUS, EDITOR
d.rus@creative-peas.com

DR. ANGELA CARTER, EDITOR
angela_carter@justdevelopment.co.uk

PD DR. ROMAN SOUCEK, EDITOR
roman.soucek@fau.de

How to avoid the 10 biggest problems in performance management

Robert D. Pritchard and Natalie E. Wright

ROBERT D. PRITCHARD
Professor Emeritus, University of Central Florida, USA
RDPritchard@gmail.com

NATALIE E. WRIGHT
CIC Planning Group, USA
natalie@cicplanning.com

About the authors

Robert D. Pritchard (PhD) received his bachelor's degree in Psychology from UCLA in 1966 and his Ph.D. in 1969 from the University of Minnesota, specializing in Industrial-Organizational Psychology. He was a faculty member at Purdue University, the Uni-versity of Houston, Texas A&M University, and Professor of Psychology and Management at the University of Central Florida, where he is currently Professor Emeritus. He has received several research awards such as the SIOP dissertation award and the SIOP Distinguished Scientific Contribution Award. He is a Fellow in SIOP, the American Psychological Association, and in the American Psychological Society, has been Chairman of the Society of Organizational Behavior and President of the Houston Association of Industrial and Organizational Psychologists. He has been on the editorial boards of professional journals, and was the Editor of the SIOP Organizational Frontiers book series. He was a member of the Commission on Incentives and Productivity for the state of Texas for five years and has been appointed to the Board of Directors of the International Foundation for Research in Performance Management Systems. His primary interests are measuring and improving organizational effectiveness and understanding and assessing work motivation. He has worked on enhancing productivity and effectiveness with organizations in the United States and abroad. He was a member of a National Research Council panel reporting on organizational productivity. He has published in the areas of motivation and productivity, including over 100 articles and ten books. He has given workshops, symposia, and other presentations on his productivity work in the US, Canada, England, the Netherlands, Germany, Switzerland, Finland, Mexico, Puerto Rico, Spain, the Czech Republic, Sweden, New Zealand, and Russia.

Natalie E. Wright (PhD) received her Ph.D. in Industrial-Organizational Psychology from the University of Central Florida in 2012. She is President of the CIC Planning Group, a research and evaluation consulting firm serving public agencies who support underserved populations. Her work is focused on improving motivational climate and organizational effectiveness, particularly in public education contexts, through the application of evidence-based work and organizational psychology principles. She leads efforts to diagnose systemic challenges – including those related to educator preparation, recruitment, retention, and performance management, and the often competing goals of maximizing students' social-emotional well-being and academic achievement – and to enhance practitioners' use of research to develop mechanisms

for overcoming such challenges. She has facilitated large-scale implementations of the Productivity Measurement and Enhancement System, including an organization-wide implementation that has provided the basis for long-term performance management in a state educational agency. She has developed assessment tools for measuring the motivational climate of K-12 classrooms which have been used to guide school climate and educator professional development initiatives. Her research and evaluation work has been presented at annual conferences including SIOP, American Educational Research Association, and other national, state, and regional practitioner-and policy-focused conferences.

Abstract

This article describes the 10 most common problems in performance management as it is used in organizations. Each problem is described, why it is a problem is discussed, along with the best ways to fix each. The hope is that this will help organizations design and implement performance management techniques so that they more effectively change employee behaviour.

Keywords: performance, management, feedback, interventions, motivation, engagement, productivity

Introduction

The topic of performance management (PM) has received considerable attention. In a recent review of PM literature, DeNisi and Murphy (2017) highlight the body of work on various PM models, strategies, and practical guidelines (e.g., Aguinis, 2013; DeNisi & Smith, 2014; Kinicki, Jacobson, Peterson, & Prussia, 2013; Pulakos, Mueller-Hanson, O'Leary, & Meyrowitz, 2012). A set of innovative developments in PM have emerged from a call for less formality and greater agility (Pulakos & O'Leary, 2011; Buckingham & Goodall, 2015; Aghina, De Smet, & Weerda, 2017), with new perspectives promoting continual, informal feedback (Pulakos, Hanson, Arad, & Moye, 2015) and focusing on future performance rather than past behaviour (e.g., Kluger & Nir, 2010). Likewise, across the globe, organizations are paying considerably greater attention to the "human" aspects of performance management, placing emphasis on the ways in which productivity is impacted by employee health, wellbeing, and interpersonal relationships in the workplace (Capelli & Tavis, 2016). Another example of this attention is this special

issue of *InPractice* which focuses exclusively on innovations and trends in performance management and feedback interventions.

While scholars and practitioners alike have begun a shift away from more traditional, prescriptive views of PM toward innovative and agile approaches to employee engagement and organizational effectiveness, the underlying principle behind the focus on PM remains – we can have a substantial positive (or negative) influence on work performance by changing how people are treated by the organization.

This lead article to this special issue is meant to be an introduction to the topic. It will describe the most important problems people encounter when implementing PM and how they can be avoided. The basic structure of the article is to 1) list each problem and explain it, 2) describe why it is a problem, and 3) explain how things should be done better. This is meant to set the stage for the articles that follow.

Much of the material in this paper comes from the authors' experience with ProMES, the Productivity Measurement and Enhancement System (Pritchard, Harrell, DiazGranados, & Guzman, 2008; Pritchard, Weaver, & Ashwood, 2012; www.promes-icc.com). This 35+ year research program has used the ProMES intervention in many different settings and we have learned a good deal about what does and does not work well.

Some of these issues may seem obvious to PM professionals. Indeed, these are not new issues. We assure you that the vast majority of PM systems that ProMES researchers have worked with have had many or most of these problems. Furthermore, as organizations are reinventing their approaches to PM, we must also rethink approaches to overcome these common problems.

The 10 biggest problems in performance management

1. Not tying performance measures to broader organizational objectives

What is the problem?

The measures used in a PM system must be consistent with the objectives of the broader organization. That is, if the measure is improved, this should lead to improved organizational-level outcomes. This sounds obvious, but it is often a problem.
An example comes from an American unit doing repairs on electronic aircraft

components such as radios and radars (Pritchard et al., 1988; 1989). A key measure they used was the average time to repair pieces of equipment. On the surface, this seemed like a reasonable measure. Getting the repairs done quickly seemed like a good idea.

However, when asked how this measure led to meeting the broader organization's objectives, it was clear there was a problem. Maximizing their performance on this measure meant doing repairs quickly. However, there were times of low demand where unit personnel were not busy and waited for more items to be turned in for repair. A better approach was to do non-essential preventative maintenance on items they were repairing if they had the time. This took more time and "hurt" their measure of average time to repair but would lead to that item working longer before additional repairs were needed on it in the future. This kept more of the aircraft ready to fly; a key objective of the broader organization. They changed their measure to what per cent of demand was met. The idea was when the demand was high, getting all the items repaired quickly was important. But when demand was lower, they should take the time to do the discretionary preventative maintenance.

Why it is a problem

Measures inconsistent with broader organizational objectives are an obvious problem. Performing better on them will not lead to meeting the organization's objectives. Unit staff will ultimately feel that effort is wasted. Measures will also not be supported by higher management if they see this lack of alignment.

How to do it right

The fix for this is actually fairly easy as long as the organization's broader objectives are clear. If they are not clear, they need to be made clear. Start with defining a mission statement, vision, and strategy development in top management. The unit where the PM system is being developed can then identify their own unit's objectives and make sure they are consistent with the objectives of the broader organization. If the broader organization's objectives are clear, it should not take long to assess this consistency. Unit objectives not aligned with those of the broader organization should be changed to be consistent.

Making sure the PM **measures** are aligned with unit and broader organizational objectives is a bit more difficult. A good question to ask is: if the unit improved on

a measure, would that lead to better meeting the unit's and organization's objectives? Such a question can help identify lack of alignment and how measures need to be changed.

2. Measure and hold people accountable for measures they cannot control

What is the problem?

Often measures are used in a PM system that are not under sufficient control by the people doing the work. By controllability of PM measures, we mean the extent to which individuals and teams can control the level of their performance on the measures by varying the amount of effort allocated to the tasks that lead to those performance measures. This could be variation in the level of effort or variation in how effort is allocated to the various tasks that together produce the performance measure.

This lack of control is probably the most common and most damaging mistake in doing PM. The assumption we are making here is that the reason for using the PM system is to maximize performance. Often measures are used for PM that have been developed for other purposes and are simply transferred to the PM system. Most common is a situation where measures are used for PM that have been developed for management information systems such as return on investment analyses. A good example is a measure of cost per unit produced. Such measures are useful for management decisions on the value of, e.g., a new piece of manufacturing equipment. However, such measures are not useful for improving performance because they contain major components beyond the control of the people doing the work. Factors such as cost of labor, reliability of equipment, and cost to maintain the equipment are not under the control of the people doing the work.

A different type of lack of control can result from using an "obvious" measure without considering all the factors that influence that measure. An example comes from a Dutch firm manufacturing cardboard boxes (Janssen, van Berkel, & Stolk, 1995). A team fed large pieces of cardboard stock into a complex machine which had a drum that rotated and cut the individual boxes from the large sheet and inked them with the client's name and other customer information. The "obvious" measure was number of boxes produced by the team. However, the number of boxes was heavily influenced by the size of the boxes for a given order. If the order called for small boxes, there could be 20

boxes cut from each sheet of cardboard fed through the rotating cutting/inking drum. If large boxes were ordered there could be as few as 1 or 2 boxes per drum rotation. After working on this measure, the team concluded that the number of rotations of the drum was a better measure they had more control over.

A more complex example of increasing controllability comes from a ProMES project done with Swedish Traffic Police (Agrell & Malm, 2002; Pritchard, Culbertson, Agrell, & Malm, 2009). The goal of the project was to reduce traffic accidents, injuries and fatalities. In building the measures for their system, traffic officers were reluctant to include measures of accidents, injuries, and fatalities because they felt they did not have sufficient control over these outcomes. Instead, they argued that they should include measures of how often they patrolled the areas most likely to lead to these negative traffic events at the times when they would most likely occur. They wanted to use these measures and if improving them did not lead to more positive traffic outcomes, they would use the more direct measures. Management agreed to this. After feedback, they increased these measures of how they patrolled dramatically and accidents, injuries, and fatalities decreased substantially.

Why it is a problem

Making people responsible for measures they cannot control is a sure way to drain motivation. If staff cannot have reasonable control over their measures, then putting more or less effort into the work will have little influence on the numbers used to evaluate them. Motivation will suffer from the lack of connection between effort and results (Pritchard & Ashwood, 2008). This also leaves staff feeling somewhat insulted and leads them to ignore the feedback they receive on the measures. It also makes management look bad in the eyes of the staff. It is even a greater problem when goal setting or incentives are tied to uncontrollable measures.

How to do it right

Maximizing the controllability of measures often takes a good bit of effort. The basic idea is to 1) look at all the factors that influence a measure, 2) assess which are and are not under the control of the unit, and 3) redesign the measure to improve controllability. This sometimes means coming up with a new measure and sometimes means giving the unit more control.

An example of the first type of redesign is the cardboard box manufacturing discussed above where the measure was changed to eliminate the effects of box size. An example of the second type of change comes from the same box manufacturing setting. Preventative maintenance was necessary to keep output high but scheduling the unit which did such maintenance was often a problem. The team was given more control over their output by allowing them to do their own preventative maintenance.

Yet another example of the second type comes from a Dutch maintenance team whose output measures sometimes decreased because they did not get the supplies and spare parts they need to operate. Approaching those who controlled delivery of supplies and parts and working out a more effective distribution system decreased this uncontrollable source of variance.

The issue of controllability and more detail on techniques that can be used to increase control are discussed in Pritchard, van Tuijl, Bedwell, Weaver, Fullick, & Wright (2017).

3. Implement a PM system top-down

What is the problem?

Many times, a PM system is developed by management and imposed on a unit below them that does the actual work. For example, middle management comes up with a set of measures and the unit doing the work is told this will be how they will now be evaluated. The people doing the work had no control over what measures were selected.

Why it is a problem

There are a number of criteria that must be met to have good PM measures and most managers are not especially sensitive to these. In addition, management frequently does not know enough about the work to come up with good measures. A top-down approach often produces incomplete and inaccurate measures which are not accepted by unit staff. This leads staff to ignore them, or effort is wasted to make these measures "look good" for management. The other problem is this lack of participation removes control from the people doing the work. This can have a negative effect on motivation and make people feel as if they are not valued as professionals (Pritchard et al., 2017; Pritchard & Ashwood, 2008; Scaduto, Hunt, & Schmerling, 2015).

An example comes from a German firm manufacturing electrical components such as switches and circuit breakers (Przygodda, Kleinbeck, Schmidt, & Beckmann, 1995). Employees of several of the teams making these components were given a large number of measures by management. However, there were too many measures to be useful, many were beyond the unit's control, and they left out some important parts of the work.

How to do it right

A better approach is a bottom-up development strategy where the staff doing the work develop the measures which are then presented to, edited by, and approved by higher management. However, do not expect the people doing the work to be able to develop good measures all by themselves. In the ProMES process, a facilitator gives the design team a list of criteria (Table 1) that measures must meet. As measures are proposed, they are compared to the criteria. What we find is it takes substantial time to develop the first few measures because it takes time for the design team to learn how to meet the criteria. After that, the process goes quicker.

In the electrical components firm mentioned above, reviewing the measures by the team doing the work resulted in far fewer measures, ones the team had more control over, and the addition of measures of aspects of the work that had been omitted.

Table 1.
Criteria for Good Measures

Measures must be consistent with the objectives of the broader organization.
If the measure was maximized, the organization would benefit.
Measures must validly measure the unit's objective.
All important aspects of each objective of the unit must be covered by the set of measures.
Higher management must be committed to the measure.
Measures must be largely under the control of unit personnel.
Measures must be understandable and meaningful to unit personnel.
It must be possible to provide information on the measure in a timely manner.
Accurate data on the measure must be cost effective to collect.
The information provided by the measure must neither be too general nor too specific.

4. Give feedback based on invalid measures

What is the problem?

If measures are flawed, i.e., if they don't meet the criteria in Table 1, feedback on those measures will not effectively change behaviour. The criteria for good measures that are especially relevant to the feedback system are:

- Making sure the measures are consistent with the objectives of the broader organization
- Using measures that are largely under the control of unit personnel
- Using measures that are valid and perceived as valid
- Measuring all important aspects of the work

While the quality of feedback is directly related to the quality of performance measures, organizations often deliver feedback based on measures that do not meet these important criteria. The importance of developing measures that are consistent with the objectives of the broader organization and under the control of the unit personnel were discussed above.

Another common problem occurs when organizations measure and feedback only some, but not all, important parts of the work. Measures are included which are easy to use and more difficult measures are omitted. A frequent example is using quantity measures but omitting quality measures. While quantity is usually fairly easy to assess, quality is not. Customer satisfaction is another usually important outcome but is often omitted because it is harder to measure.

Why it is a problem

Giving feedback based on invalid measures or measures that are not consistent with unit and organizational objectives is an obvious problem. Simply put, invalid measures produce invalid feedback.

An example of invalid measures comes from a maintenance unit in an education setting. This unit did major renovation projects such as remodeling classrooms. Higher management bought into a system for estimating costs of such jobs and tracking expenditures. The maintenance staff quickly realized that the new system was very cumbersome and did not produce accurate estimates. However, higher management did not want to look bad for purchasing the system, so they forced the unit to "game" it in

that they did their usual cost estimates then changed them around so that they would make the new system look accurate. This resulted in a great deal of additional effort that the personnel considered a waste of time. In this example, the measures used for feedback were invalid, inconsistent with the objectives of the broader organization, and not under the control of the unit staff (i.e., not representative of their actual effort). This feedback led to large decreases in morale and motivation.

A general principle of PM is that resources flow to what is measured and fed back. By taking the time to measure some aspect of the work and feedback that information to the staff, management is signaling that this is an important part of the work and should be a significant focus by the staff. An example comes from an academic department where the first author was a faculty member. This was in the day before email and the department was experiencing large long distance phone bills. The department chair started giving each faculty member a form showing the number and cost of the long distance calls s/he made in the last month. Without any further discussion or any outcomes tied to this report, long distance calling decreased dramatically. So the simple step of giving the feedback resulted in significant behaviour change.

While feedback is very powerful, it is a two-edged sword. Measuring and feeding back results on some of the important measures ignores what is happening to other important measures which are not fed back. If quantity of output is measured and fed back but quality is not, quality can suffer. The implied message is quantity is important, but quality is not.

How to do it right

The solution is fairly simple, but not easy. The PM system needs to include measures that meet all the criteria in Table 1. This should ideally be done with a bottom-up strategy where the unit personnel design the measures with help.

In the ProMES intervention, we start with the design team identifying the objectives of that unit. These are what the unit does to add value to the broader organization. This is usually a set of five to eight objectives and takes two hours or less for the unit to define. Measures are then selected or developed that show how well the unit is meeting these objectives. Starting with the unit's objectives makes it more likely that all the important aspects of the work are included in the set of measures.

It is still a challenge for most design teams to develop good measures; ones that meet all the criteria in Table 1. One approach for difficult measures is to start with the idea that there are three steps in the process of producing results that are of value to the organization. These steps are the inputs to the result, the process used to develop the result, and the final output. In general, the best measure is the actual output. The units produced, the fees collected, or the degree of customer satisfaction. When output cannot be measured, the next best bet is to measure the process that produces the output. If that cannot be done, measure the input.

For example, one measure of a unit doing management selection assessments in an international consulting firm was behaving ethically with clients. It was not feasible to measure the output, e.g., if ethics complaints were filed. This was very rare and not all ethics violations were reported. Measuring the process was also not feasible. Having a second consultant participate in the service to the client each time and identifying any ethics violations would have been too costly. So the unit decided to use an input measure, the extent to which the firm's consultants attended ethics training regularly (Pritchard et al., 2008). The idea was this input variable of reminders of ethical consultant behaviour should make the process of client services more ethical, which would prevent negative consequences of unethical practices.

Another example comes from a Dutch manufacturing firm (Kleingeld & van Tuijl, 1995). One measure they wanted was customer satisfaction. However, they could not come up with a way of measuring customer satisfaction that would work. One problem was the products they made would often be stored in the customer's warehouse for months before being used. So the customer could not provide satisfaction measures on those products in a timely way. The unit decided to use a process measure. They interviewed a number of clients and identified the aspects of the product that led to customer satisfaction and dissatisfaction such as poor packaging and incorrect product labeling. They then measured how well these process features were done during manufacturing with the idea that if they were done well, customer satisfaction should be high.

The experience of the team is another consideration. With a new team, input or process indicators may be preferred, because they can help the team clarify the way their work should be done. With established or experienced teams, more distal output measures may be more appropriate.

5. Design a poor feedback system

What is the problem?

While feedback can be a powerful source for behaviour change, it is not easy to develop a good feedback system. An ideal feedback system must meet a number of criteria. The more of these that are met, the better the feedback system. Some of these deal with the quality of the measures used; we have discussed these above and they are listed in Table 1.

However, when we consider the design of the feedback system itself, there are additional criteria that frequently go unmet. Often, feedback is given on multiple individual measures without providing feedback on overall unit performance. It is hard for the unit personnel to assess how well they are doing overall without such overall performance measures. Another issue is not all the performance measures are going to be equally important and ideally this should be included in the feedback design. Finally, feedback systems rarely identify improvement priorities in any formal way.

Why it is a problem

We have discussed above why having good measures is important to a good feedback system. Here we focus on three additional criteria: having an overall index of performance, identifying the relative importance of different measures, and formally identifying improvement priorities.

Having an overall index of performance is important so unit personnel can see whether their performance is going up or not. With eight to 12 different measures, some going up and some going down, it is difficult to tell what is happening to overall performance. An overall index provides a tangible, quantitative view of performance across multiple measures. For the unit, seeing this index go up is very reinforcing, as it is indicative of improved overall performance. For management teams, the index gives a snapshot of performance across multiple units and does so in a way that is fair and accepted by the unit personnel.

An example of using the overall index to compare units comes from an education setting, where the organization provided support services to schools (Wright & Hill, 2014). Each unit was unique, e.g., one unit designed training for teachers, one provided

school maintenance services, and one managed student data. Thus, performance measures for each unit were very different. Management wanted a way to view performance across units for purposes of determining where organizational resources and staff development were needed most. Without an overall index of performance for each unit, comparisons across units for making good decisions about resource distribution would be much more difficult and be perceived as unfair by unit staff.

While feedback is intended to lead to improvements, not everything can be improved at once. This means that improvement priorities need to be identified, a job for the feedback system. The more clearly these improvement priorities are, the better the unit can allocate improvement efforts. Deciding on these improvement priorities is much easier when the feedback system includes relative importance of the measures and the value of different improvements to the organization. Without this information, improvement efforts will be made in areas of less value to the organization.

In the education example above, units struggled to identify priorities across multiple measures which each reflected different aspects of their jobs. Formally identifying improvement priorities enabled the units to decide which improvements to work on and focused efforts on areas where the most valuable gains could be made.

How to do it right

The ProMES approach (Pritchard, Weaver, & Ashwood, 2012) offers one way to meet all three of these criteria: overall performance index, relative importance, and improvement priorities. With ProMES, once measures are identified, the feedback design team develops what are called contingencies. These are a kind of non-linear utility function relating amount of the measure produced to the value of those amounts to the organization. These functions, one for each measure, convert levels of possible performance to contributions to organizational effectiveness. These effectiveness scores actually achieved for each measure can then be added to get an overall effectiveness score. Differential importance is captured by the range of effectiveness values in the contingencies. More important measures have larger ranges, i.e., they can contribute more to overall effectiveness than measures with smaller ranges. Improvement priorities can be calculated by determining the gain in effectiveness that would occur with a gain in each measure. The larger the potential gain, the more important improving that measure is.

6. Give feedback badly

What is the problem?

The feedback used in most organizations often has a number of problems. These problems have negative effects on behaviour change in part because they threaten personnel's receptivity to feedback (Chawla, Gabriel, Dahling, & Patel, 2016).

Most feedback systems give feedback too infrequently rather than providing regular, timely feedback on a predictable schedule. Many often give feedback only when there is a problem. That is, the feedback is always negative, indicating there is something wrong. Equally problematic is that supervisors can be reluctant to give "tough" feedback (Adler et al., 2016). Finally, it is a problem when the measures and/or the feedback system is changed frequently.

Why it is a problem

Remember that the purpose of giving feedback is to promote behaviour change that will lead to increases in organizational effectiveness. Anything that inhibits this behaviour change makes the feedback system less effective.

Feedback that only comes once or twice a year is unlikely to promote behaviour change. There is just too much time between any behaviour change and the feedback which tells employees whether their changes have had any effect. For example, a common practice in American schools is for principals to conduct formal classroom observations of teachers once or twice in a school year. With this infrequent feedback, teachers will not know whether changing a particular instructional strategy had any impact on the quality of their teaching.

If feedback is only given when it is negative and personnel are given the message that their work is not good enough, this can threaten self-esteem. Feedback that is a threat to self-esteem is a major problem for generating behaviour change (Kluger & DeNisi, 1996). In the original ProMES project with the US Air Force (Pritchard, Jones, Roth, Stuebing, & Ekeberg, 1989), the first feedback meeting showed the unit had increased dramatically in overall effectiveness and all but two of the individual measures showed good improvement. The manager spent less than one minute on the positive results, then said: "Well, why did you go down on these two measures?" After the meeting, the

ProMES facilitator pointed out to him that he spent way too much time on the negative. This type of feedback leads to efforts to protect self-esteem rather than focusing on how to improve things.

Finally, the feedback system needs to be fairly stable over time. This stability includes having consistent performance measures and priorities and predictable processes for receiving feedback. If the system changes too often, staff will not have a clear idea of how to focus their efforts and the feedback system will lose credibility.

How to do it right

Research has consistently found that continuous feedback has greater impacts on behaviour change than feedback given less frequently, i.e., once or twice a year (Pulakos, Hanson, Arad, & Moye, 2015). The actual frequency depends on the time to complete one job cycle, as feedback is most impactful when it is given immediately. Typically, if the job cycle is less than a day or two, weekly feedback is optimal. For job cycles of up to 2-3 weeks, monthly feedback is usually best. Only when the job cycle is several months is less frequent feedback warranted.

One example of more frequent feedback comes from continuous improvement models which have been used for decades in product-driven fields such as manufacturing. Recently, many organizations are adapting such methods for use in other fields and job types. Because they are typically based on discrete job cycles and iterative outputs (Kniberg & Skarin, 2010), they are useful as a basis for rapid feedback. For example, the Scrum framework, an agile project management model originally used in software development projects, uses multiple, frequent feedback cycles (e.g., daily, weekly, or monthly sprints) to maximize collaboration and performance of interdependent teams (Beck et al., 2001). Increasingly, Scrum principles are being used across industries as a model for continuous feedback and knowledge management (Ciric et al., 2018; Hidalgo, 2019).

In addition to increasing the frequency of feedback, one of the most important issues is training managers to give positive as well as negative feedback both to individuals and groups. In the US Air Force example above, we recommend the supervisor focus first on the measures that improved and ask: what did we do to make these go up? In some cases, the group does not know, but most of the time the increase was because of a changed work strategy. The focus should be on identifying why each measure went up and what the unit needs to keep the improvement going. For measures that went down,

the question should be what do we need to do to turn these around?
This feedback focus also addresses the self-esteem issue. If the message from the supervisor is the individual or group did something wrong, as in the Air Force example above, this will be a threat to self-esteem. However, if the message is how can we work together to problem solve ways of improving this measure, the self-esteem threat is much less likely.

Consistent with Positive Psychology literature (e.g., Seligman, Steen, Park, & Peterson, 2005; Seligman & Csikszentmihalyi, 2000), recent strategies promote feedback that develops Positive Organizational Scholarship (e.g., Roberts et al., 2005; Cameron et al., 2003). Such strategies, including Strength-Based Performance Appraisal (Bouskila-Yam & Kluger, 2011) and the Feedforward Interview (Kluger & Nir, 2010), focus on feedback that promotes self-evaluation, emphasizes a person's strengths and resilience, and helps to build positive relationships between managers and unit staff.

Finally, avoiding frequent changes to performance measures or to the feedback system is important for feedback to effectively change behaviour. Having the unit staff participate in the design of the system, including input from supervisors, is one step towards building a system that will be stable over time. The system should also be thoroughly tested before formal implementation to identify potential problems. We recommend using the system for several feedback cycles before fully implementing it.

These issues emphasize the importance of a positive feedback environment, i.e., one that promotes transparency, consistency, and trust between the supervisor and unit staff (Steelman, Levy, & Snell, 2004).

7. Not providing the opportunity to effectively use feedback

What is the problem?

Even with good feedback, staff need an opportunity to digest feedback and plan improvement strategies. The whole point of feedback is to change behaviour. Unit personnel need to learn from the feedback and decide what behaviours to change to improve performance. In most cases, the work requires interdependence between people in the unit and interaction with other units. As discussed above, this means that the feedback will be group based and interpretation of the feedback and deciding what the priorities are for changes will be done in a group setting.

Why it is a problem

Without providing an opportunity to process the feedback, it will have less effect on behaviour change and it sends the message that feedback is not that important. An example comes from an American battery manufacturing organization (Jones, 1995). This was a ProMES project where the work was done on an assembly line. The personnel received the regular feedback, but management was not willing to provide the time and place for them to process the feedback and decide on changes. There was little effect on performance from the feedback.

How to do it right

While it takes staff time, this is easy to fix. The unit staff need to meet after each feedback report to review it and problem solve improvement priorities. The feedback meeting involves three phases. The first is reviewing the feedback. We all like feedback and after developing the feedback system, unit personnel will be interested in seeing the results. The next phase is deciding which aspects of the job to work on to make improvements. This step is important because we should not expect the unit to improve all aspects of performance at once. They need to decide which have the highest priority and then in the third phase, decide what should be done to make improvements. This is not so much increases in effort as changes in task strategy. It often involves changes in how the unit personnel coordinate with each other, e.g., sharing information, or how the unit coordinates with other units.

Staff should have the time and be given a quiet location without interruptions. Typically, 45 minutes to an hour is enough time once the staff have a bit of experience with the process. It is also important to include the supervisor in the feedback meeting. S/he will help determine improvement priorities and provide resources needed to make changes, especially when coordination with other units is needed.

One type of setting that is a challenge for feedback meetings is when the unit staff are not in the same geographic location. A copier maintenance firm in the Netherlands had its maintenance staff distributed around the country and each maintenance person was responsible for a geographic region. They solved this with the fairly simple strategy of having meetings less often, in this case every three months, and having staff come to a central location for the feedback meetings. Another option is online meetings.

8. Use typical performance reviews

What is the problem?

"Typical" performance reviews refer to performance appraisals where employees are rated by a supervisor once or twice a year on a series of dimensions. Normally, the same set of dimensions is used for large numbers of employees. These appraisals are usually done on individuals. Such PM appraisals are popular because they are fairly inexpensive to develop and can be used with large numbers of jobs. They are also a way to assess individual performance for providing outcomes such as raises and promotions.

The first author has taught Executive MBA programs where experienced managers take classes while working full-time. He has asked the 40-50 person classes how many have received performance appraisals like these. Over 90% say they have. When asked how many of them found the process helpful, only about 5% say they did. So clearly, there is something wrong with the way these are normally done.

Why it is a problem

Traditionally, there were two common approaches to the design of such appraisals. The first is to focus on **traits** such as how creative, industrious, and organized an employee is. The second is to focus on **processes** such as planning, budgeting, and delegation. Neither of these approaches is very effective.

Focusing on traits is a problem because changing traits is usually not possible. Traits tend to be fairly stable over time. Telling someone to be more creative doesn't accomplish much. What improvement strategy or behaviour change should be used to get more creative? Evaluating processes is better than evaluating traits, but processes like planning, budgeting, and delegating are only the means to an end, the actual results that are valuable to the organization. Doing better planning is only valuable if it leads to results that are more valuable.

Other problems with typical performance appraisals are they are too infrequent, the feedback is too general to allow it to be translated into specific action plans for making improvements, and they are often the type of threat to self-esteem discussed above. Kluger and DeNisi (1996) point out that feedback that is a threat to self-esteem will not be effective, as the recipient focuses on maintaining self-esteem rather than what behaviours need to change.

How to do it right

Ultimately, what the organization values are the results that lead to accomplishing the organization's objectives. Ideally, appraisals should focus on these results: the clients seen, the units produced, the quality of the output, the orders completed on schedule, and the units sold. However, this measurement is usually too difficult to do for individuals. It is expensive to customize such appraisals and it is usually difficult to identify an individual's contribution to results that are produced by coordination of the staff in the unit.

So how should they be done? There is a great deal of research on such performance appraisals and the main conclusion is the more the clear definition of the specific behaviours required, the better the results. For example, the first author and one of his doctoral students (Hedley, 1993) developed an approach to performance appraisals called the Performance Dimension Checklist (PDC) that tries to provide a detailed frame of reference for doing the appraisals. A series of dimensions, specific factors (subdimensions), and detailed behaviours are identified, and a design team selects which of these fit the job to be assessed. An example of a dimension, specific factor, and defining behaviours is shown in Table 2. Roth (2020) has developed a software system that provides the PDC (and also ProMES) in English, German, and Spanish. It translates the PDC into a day to day or "instant" feedback solution. The effectiveness of the instrument was tested in a study (see this issue of InPractice) by Soucek and Rupprecht (2020), showing that frequent supervisory feedback provides job resources that ultimately lead to a higher level of work engagement. Other ideas on how to successfully do performance appraisal can be found in DeNisi and Pritchard (2006).

In addition to the format used, e.g., the PDC, the review sessions with one's manager are essential for behaviour change. One of the biggest problems is creating the type of threat to the subordinate's self-esteem we discussed above. This is very easy to do. The manager is formally evaluating the person, and this is an emotionally delicate situation. The key is to focus on the results, not the person. If the message is "You are not doing a good enough job" this is a threat to self-esteem and the subordinate's response will be some form of "I am doing a good job!" However, suppose the message is "These results are not where I'd like to see them, so let's problem solve together to see how we can improve them." This message is much less likely to result in a threat to self-esteem.

Table 2.
Example of a PDC Dimension, Subdimension, and Specific Behaviours

Dimension
Displays effective communication skills. This dimension relates to the conveyance of information in both verbal and written form. This involves keeping others informed through one-to-one conversation, presentations, and meetings. It also includes promoting positions and influencing others to gain their support.
Subdimension
Effectively communicates verbally. This specific factor is concerned with how effectively an individual speaks (clarity, conciseness, etc.) and conveys thoughts in verbal form. It also involves listening effectively to others and keeping others informed.
Specific Behaviours
■ Provides verbal information in a clear, concise manner. ■ Uses appropriate gestures and voice inflections to emphasize points when speaking. ■ Effectively develops two-way communication. ■ Communicates effectively over the phone or when teleconferencing. ■ Listens to questions and comments of others. ■ Conveys understanding of what others say. ■ Responds appropriately to other's communication. ■ Adequately identifies the information needs of others. ■ Provides others with concise and timely information to facilitate their work. ■ Keeps those above and below in the organization appropriately informed about significant events or problems.

9. Misuse goal setting

What is the problem?

The term “goal setting” means different things to different people. Its meaning can range from casual intentions (I’m going to brush my teeth now) to a formal, publicly agreed upon quantitative level of performance between the subordinate and the supervisor, normally over a specified time period such as a week or month, with the expectation that performance will be reviewed together at the end of the time period. The focus here is on formal goal setting.

There has been a great deal of research on goal setting (Locke & Latham, 2019; Kleingeld, van Mierlo, & Arends, 2011). It is seen as a way to focus effort on the measure for which the goal is set and to get commitment to increase performance to meet the goal. Surprisingly, there is very little research on the use of goal setting in field settings over any extended time period.

The biggest problem with goal setting is its misuse by managers. Most managers focus on the goal itself rather than the performance change. Suppose someone is producing 80 units a month and in meeting with his manager sets a goal of 100 units. At the end of the month, he has produced 95 units. If the manager is not pleased because the person did not make the goal, this teaches the person to make sure to set very low goals that he is sure to make. As one manager said, "Oh, goal setting. That's where a smart subordinate convinces a less smart manager to set low goals that he is sure to make."

What the manager should focus on is the performance change. The subordinate should be complimented on his improvement rather than focusing on the goal attainment. Ideally, the manager should then discuss how they can work together to make that final improvement.

Why it is a problem

While goal setting can increase performance, there are several problems with it. Like feedback, resources will flow to the measures where goals are set. If only a subset of the important aspects of performance have goals set for them, other aspects of performance can suffer. Formal goal setting requires good, quantitative measures. So if quantity is measured and quantity goals are set, but quality goals are not, quality can suffer. Another problem occurs with "all or nothing" goals. If someone sees that they will not achieve the goal, the person may give up and decrease effort. Likewise, once the goal is reached, there can be a decrease in effort to go beyond the goal.

As suggested above, focusing on the goal rather than performance improvement leads to the subordinate trying to set easy goals that s/he is sure to attain. It can also lead to decreased commitment to the whole goal setting process.

How to do it right

There are a number of things that can be done to improve goal setting as a PM technique. Goals should be set on all the important aspects of performance, not

just a few. This minimizes the problem of areas without goals suffering from lack of attention. However, this requires a good measurement system that includes all important aspects of performance, a challenging thing to achieve. In addition, if separate goals are set for each aspect of performance, this becomes difficult to manage. It is hard to set and deal with eight to 12 different goals. So a better approach is to develop an overall index of performance and set the goals on that overall index. There are many challenges to developing a good overall index. The approach we like is the one used by ProMES (Pritchard, Weaver, & Ashwood, 2012).

We also recommend the use of multiple goal levels. An international consulting firm used three goal levels, what they called the "A Goal", the "B Goal", and the "C Goal". Each individual had all three goals. The A Goal was outstanding performance, the B Goal good performance, and the C Goal acceptable performance. This minimizes the problem of people decreasing effort when they see they will not reach the goal or decreasing it once they reach the single goal.

However the goals are designed, it is essential to train managers to focus on the performance change, not the goal attainment.

10. Do financial incentives badly

What is the problem?

We use the term "financial incentives" to mean a formal program where financial rewards are tied to specific, quantitative levels of performance and the system is known in advance and it goes on over time. A good financial incentive system can improve performance, but very often such systems are done badly.

In fact, it is very difficult to do one well. The biggest problem is measuring performance. All the issues we have discussed above about developing good measures apply to the measures used for financial incentives. Unfortunately, a poorly designed system will cause more problems the stronger it is. That is, the larger the incentives, the more damage it can do if poorly designed.

Why it is a problem

If the measurement of performance is not done very carefully, incentivizing what is measured can produce unexpected negative consequences. A classic example comes

from a commercial bakery in the US. Part of the process was the inspection of the dry ingredients for foreign matter (twigs, trash, dead rodents) as they went along a conveyer belt into the mixing phase. The organization instituted an incentive system were significant financial incentives were awarded for the amount of foreign matter each inspector found. They later found that inspectors were bringing in foreign matter to put into the ingredients and then "found" them to get the incentives.

Most of the issues about measures we have been discussing also apply to measures used for financial incentives. Some that apply particularly to financial incentives include:

- Measuring only some important aspects of performance. Things not included in the measures and thus the incentives receive less attention.
- Using measures not under the control of unit personnel. Management loses credibility and the system is ignored.
- Using measures that are not perceived as valid. Unit personnel make the numbers look good, even though they know it is not helping the organization.
- A significant threat to motivation.
  Using the wrong unit of analysis, e.g., attempting to use individual incentives when the work requires coordination between people.

There are other problems with using financial incentives. If multiple measures are used, the system becomes difficult to manage. It is a challenge to come up with financial incentives for a number of different measures. Another problem is that perceptions of inequity are almost inevitable. Staff within the unit will not agree on how financial rewards are distributed because they will disagree on what factors should be considered in dividing up the money. For example, disagreements on whether factors such as level of responsibility for performance, amount of experience/tenure in the unit, and level of individual performance contribution should be considered. In addition, people who are not under the incentive system can feel resentful about being left out. Finally, it is very difficult to change the system once implemented. This is especially the case if the level of rewards is decreased for the same level of performance over time.

How to do it right

Many, but not all of these problems can be dealt with by first developing a high-quality set of performance measures that can be converted to a single overall score. By high-quality we mean measures that meet the criteria we have been discussing and are summarized in Table 1. As for getting an overall performance index, we have noted

before that one way to get such an overall score is with the ProMES approach. This was done in a German silicone manufacturing unit (Fuhrmann, Kleinbeck, & Boeck, 2002). The project actually started with the organization wanting to institute a financial incentive system. The authors convinced company personnel that they should first develop a good measurement system and suggested they use ProMES to do that. This worked out quite well.

Our advice for doing financial incentives is to first develop and refine the measurement system. As discussed above, use a bottom-up approach with editing and approval from higher management. Then implement the measurement system, including feedback. This will usually result in some refinement of the measurement system after experience. Only when all agree that the measurement system is good should incentives be added. Before incentives are actually added, have the unit personnel agree on the way the rewards should be distributed to individual group members. That is, what factors such as seniority, tenure, and level of responsibility for performance should influence how much each person gets.

We can make a final set of recommendations on the use of financial incentives because of all the potential problems they have. First, try other things before adding incentives. Specifically, first develop a good measurement and feedback system, give it enough time to be used and refined, and then see how that effects performance. This can produce substantial improvements. For example, ProMES projects average an improvement effect size of 1.16 and when all the steps are fully implemented, an average effect size of 1.81 (Pritchard et al., 2007). Next, if incentives are to be added, consider non-financial incentives. One of the strongest is time off. High performance leading to getting a half-day off on Friday can be a powerful incentive. Finally, instead of incentives, consider using financial bonuses, i.e., a financial bonus based on performance and profitability that is determined each period. Bonuses are easier to deal with because the performance measurement system is less demanding and it is fairly easy to change the amount of the bonus as needed.

Conclusion

Performance management techniques can be a powerful source of improved performance.

We have focused on the problems that can make performance management unsuccessful and how to make improvements that will make them more effective.

As we noted at the beginning of this article, many of these problems and improvements may seem obvious. However, our experience over the last 40 years with PM is that every organization we have studied has most of these problems in their PM systems.

References

Adler, S., Campion, M., Colquitt, A., Grubb, A., Murphy, K., Ollander-Krane, R., & Pulakos, E. D. (2016). Getting rid of performance ratings: Genius or folly? A debate. *Industrial and Organizational Psychology: Perspectives on Science and Practice*, *9*(2), 219–252.

Aghina, W., De Smet, A., & Weerda, K. (2017). Agility: It rhymes with stability. *Performance Frontiers.* http://www.mckinsey.com/business-functions/organization/our-insights/agility-it-rhymes-with-stability

Agrell, A. & Malm, K. (2002). ProMES in a Swedish traffic police department and its effects on team climate. In R. D. Pritchard, H. Holling, F. Lammers, & B. D. Clark, (Eds.). *Improving organizational performance with the Productivity Measurement and Enhancement System: An international collaboration.* Huntington, New York: Nova Science, pp. 53-68.

Aguinis, H. (2013). *Performance Management* (2nd ed.). Upper Saddle River, NJ: Pearson.

Beck, K., Beedle, M., van Bennekum, A., Cockburn, A., Cunningham, W., Fowler, M., & Kernet, J. (2001). Manifesto for agile software development. http://agilemanifesto.org

Bouskila-Yam, O. and Kluger, A.N. (2011). Strength-based performance appraisal and goal setting. *Human Resource Management Review, 21*, 137-147.

Buckingham, M., & Goodall, A. (2015). Reinventing performance management. *Harvard Business Review*, *April*, 40-50.

Cameron, K. S., Dutton, J. E., & Quinn, R. E. (Eds.). (2003). Positive organizational scholarship: Foundations of a new discipline. San Francisco: Berrett-Koehler

Cappelli, P., & Tavis, A. (2016). The performance management revolution. *Harvard Business Review*, *October*, 58-67.

Chawla, N., Gabriel, A. S., Dahling, J. J., & Patel, K. (2016). Feedback dynamics are critical to improving performance management systems. *Industrial and Organizational Psychology, 9*, 260-266.

Ciric, D., Lalic, B., Gracanin, D., Palcic, I., & Zivlak, N. (2018, March). Agile project management in new product development and innovation processes: challenges and benefits beyond software domain. 2018 IEEE International Symposium on Innovation and Entrepreneurship.

DeNisi, A. S., & Murphy, K. R. (2017). Performance appraisal and performance management: 100 years of progress? *Journal of Applied Psychology, 102*(3), 421-433.

DeNisi, A. S. & Pritchard, R. D. (2006). Performance appraisal, performance management and improving individual performance: A motivational framework. *Management and Organization Review, 2*(2), 253–277.

DeNisi, A., & Smith, C. E. (2014). Performance appraisal, performance management, and firm-level performance. *Academy of Management Annals, 8*, 127–179.

Fuhrmann, H., Kleinbeck, U., & Boeck, L. (2002). The compatibility of ProMES with performance-based pay systems. In R. D. Pritchard, H. Holling, F. Lammers, & B. D. Clark, (Eds.). *Improving organizational performance with the Productivity Measurement and Enhancement System: An international collaboration.* Huntington, New York: Nova Science, pp. 125-136.

Hedley, A.L. (1993). *The development and evaluation of the "Performance Dimension Checklist": An executive, professional and managerial job performance taxonomy*. Unpublished doctoral dissertation, Texas A&M University, College Station Texas.

Hidalgo, E. S. (2019). Adapting the scrum framework for agile project management in science: case study of a distributed research initiative. *Heliyon, 5*(4), e01542.

Janssen, P., van Berkel, A. & Stolk, Jan. (1995). ProMES as part of a new management strategy. In Pritchard, R.D. (Ed.), Productivity measurement and improvement: Organizational case studies. New York: Praeger, pp. 43-61.

Jones, S.D. (1995). ProMES with assembly line work groups: it is more than just a technology. In Pritchard, R.D. (Ed.), Productivity measurement and improvement: Organizational case studies. New York: Praeger, pp. 94-116.

Kinicki, A. J. , Jacobson, K. J. L. , Peterson, S. J. , & Prussia, G. E. (2013). Development and validation of the performance management questionnaire. *Personnel Psychology, 66*(1), 146.

Kleingeld, A., van Mierlo, H., & Arends, L. (2011). The effect of goal setting on group performance: A meta-analysis. *Journal of Applied Psychology*, *96*(6), 1289-1304.

Kleingeld, A. & van Tuijl, H. (1995). Individual and group productivity enhancement in a service setting. In Pritchard, R.D. (Ed.), Productivity measurement and improvement: Organizational case studies. New York: Praeger, pp. 140-169.

Kluger, A. N., & DeNisi, A. (1996). The effects of feedback interventions on performance: A historical review, a meta-analysis, and a preliminary feedback intervention theory. *Psychological Bulletin, 119*, 254-284.

Kluger, A. N., & Nir, D. (2010). The feedforward interview. *Human Resource Management Review, 20*, 235-246.

Kniberg, H., & Skarin, M. (2010). *Kanban and scrum: Making the most of both*. C4Media, Publisher of InfoQ.com.

Locke, E. A., & Latham, G. P. (2019). The development of goal setting theory: A half century retrospective. *Motivation Science, 5*(2), 93-105.

Pritchard, R. D. & Ashwood, E. L. (2008). *Managing motivation: A manager's guide to diagnosing and improving motivation*. New York: Routledge, Taylor & Francis Group, pp. 176.

Pritchard, R. D., Culbertson, S. S., Agrell, A., & Malm, K. (2009). Improving performance in a Swedish police traffic unit: Results of an intervention. *Journal of Criminal Justice, 37*, 85- 97.

Pritchard, R.D., Harrell, M.M., DiazGranados, D. & Guzman, M. J. (2008). The Productivity Measurement and Enhancement System: A Meta-Analysis, *Journal of Applied Psychology, 93*, (3), 540–567.

Pritchard, R. D., Jones, S. D., Roth, P. L., Stuebing, K. K., & Ekeberg, S. E. (1988). The effects of feedback, goal setting, and incentives on organizational productivity. *Journal of Applied Psychology Monograph Series, 73*(2), 337-358.

Pritchard, R. D., Jones, S. D., Roth, P. L., Stuebing, K. K., Ekeberg, S. E. (1989). The evaluation of an integrated approach to measuring organizational productivity. *Personnel Psychology, 42*(1), 69-115.

Pritchard, R. D., Weaver, S. J. & Ashwood, E. L. (2012). *Evidence-based productivity improvement: A practical guide to the Productivity Measurement and Enhancement System.* New York: Routledge, Taylor & Francis Group.

Pritchard, R. D., van Tuijl, H., Bedwell, W. L., Weaver, S. J., & Fullick, J. M., & Wright, N. E. (2017). Maximizing Controllability in ProMES Measures. P*roMES ICC White Paper Series, 1*(1), 2-11. Retrieved from http://www.promes-ecc.com/images/main/__main/07-news/02whitepaper/images/picc_wp_vol1_no1.pdf

Przygodda, M., Kleinbeck, U., Schmidt, K. & Beckmann, J. (1995).Productivity measurement and enhancement in advanced manufacturing systems. In Pritchard, R.D. (Ed.), Productivity measurement and improvement: Organizational case studies. New York: Praeger, pp. 62-80.

Pulakos, E. D., Mueller-Hanson, R. A., Arad, S., & Moye, N. (2015). Performance management can be fixed: An on-the-job experiential learning approach for complex behavior change. *Industrial and Organizational Psychology: Perspectives on Science and Practice, 8*(1), 51–76.

Pulakos, E. D., & O'Leary, R. S. (2011). Why is performance management broken? *Industrial and Organizational Psychology, 4*(2), 146-164.

Roberts, L. M., Dutton, J. E., Spreitzer, G. M., Heaphy, E. D., & Quinn, R. E. (2005). Composing the reflected best self portrait: Building pathways for becoming extraordinary in work organizations. *Academy of Management Review, 30*(4), 712-736.

Roth (2020). *Feedback in small portions*. Retrieved from https://www.effecteev.de/en/

Scaduto, A., Hunt, B., & Schmerling, D. (2015). A performance management solution: Productivity Measurement and Enhancement System (ProMES). *Industrial and Organizational Psychology, Cambridge University Press, 8*(1), 93-99.

Seligman, M., & Csikszentmihalyi, M. (2000). Positive psychology: An introduction. *American Psychologist, 55*, 5-14.

Seligman, M. E. P., Steen, T. A., Park, N., & Peterson, C. (2005). Positive psychology progress: Empirical validation of interventions. *American Psychologist, 60*(5), 410-421.

Soucek, R., & Rupprecht, A. (2020). Supervisor feedback as a source of work engagement? The contribution of day-to-day feedback to job resources and work engagement. *InPractice*, *14*, 70-89.

Steelman, L. A., Levy, P. E., & Snell, A. F. (2004). The Feedback Environment Scale: Construct definition, measurement, and validation. *Educational and Psychological Measurement, 64*(1), 165-184.

Wright, N. E. & Hill, M. T. (2014, December). *Measuring the effectiveness of your ESA: How do you know you are providing quality service?* Presentation at the annual conference of the Association for Educational Service Agencies, San Diego, CA.

Feedback intervention perceptions: Development and validation of a measure

Brandon L. Young and Barbara A. Fritzsche

BRANDON L. YOUNG
University of Central Florida, USA
youngbrandonlee@gmail.com

BARBARA A. FRITZSCHE
University of Central Florida, USA
barbara.fritzsche@ucf.edu

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 the user's ability and willingness to use them. 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. ** = Δx^2 p < .001. * = ΔCFI > .01

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

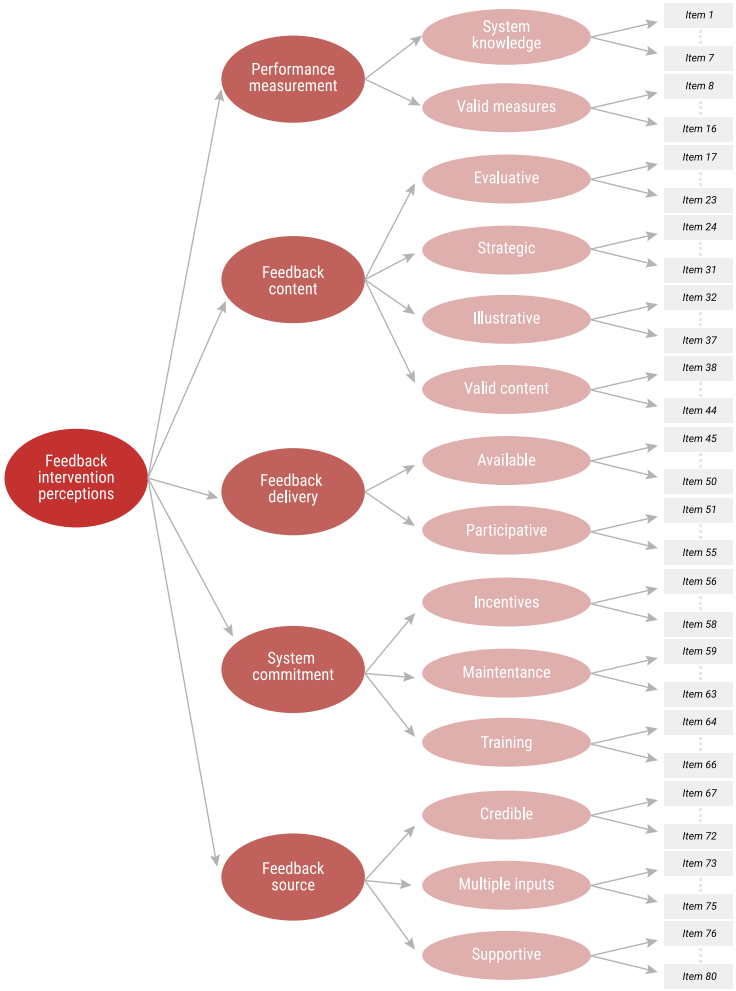


Figure 2
Five-Factor Model (Model 2)

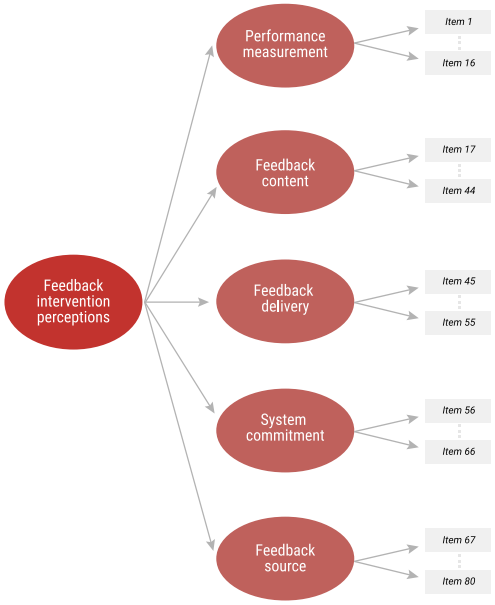


Figure 3
Oblique Five-Factor Model (Model 3)

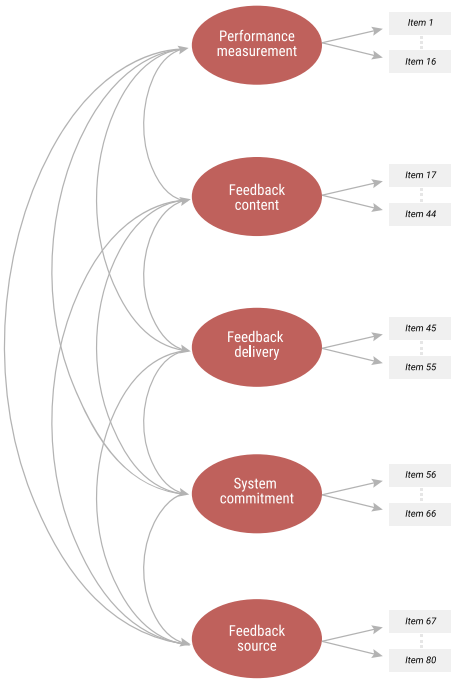


Figure 4
Fourteen-Factor Model (Model 4)

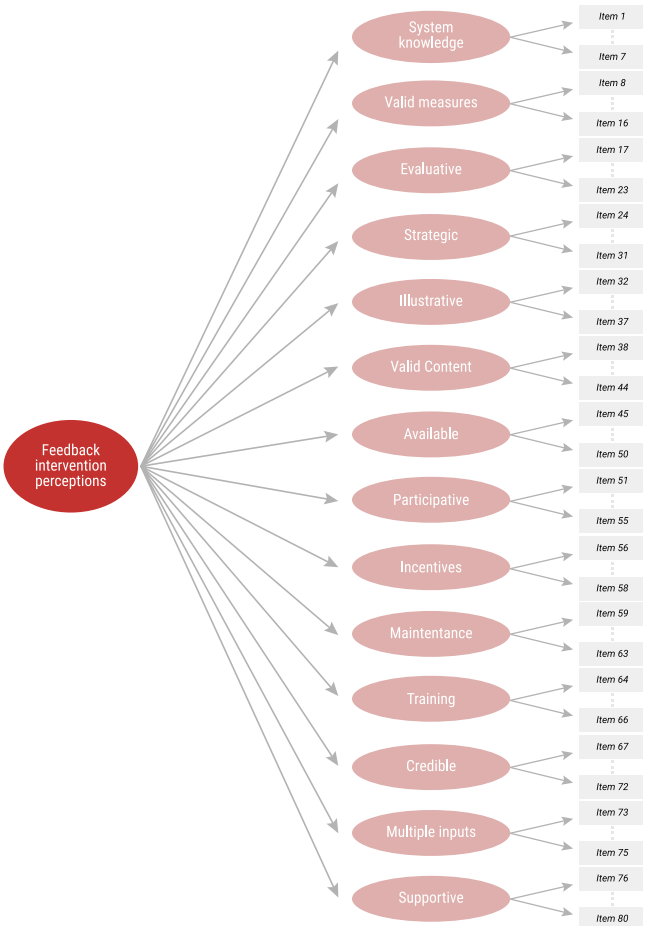


Figure 5
Single-Factor Model (Model 5)

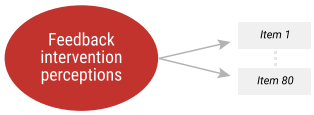
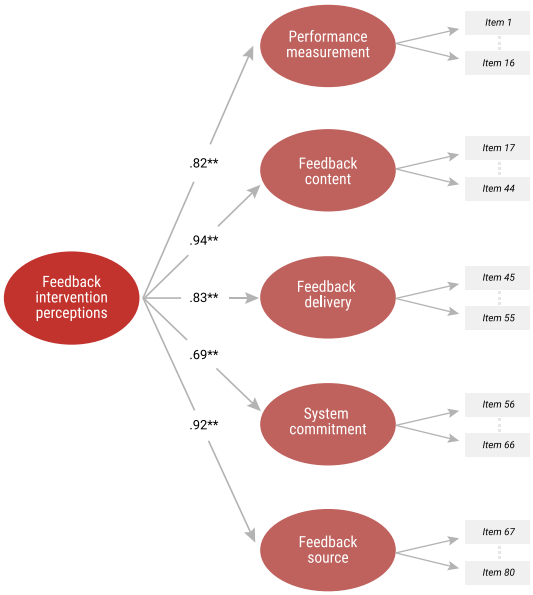
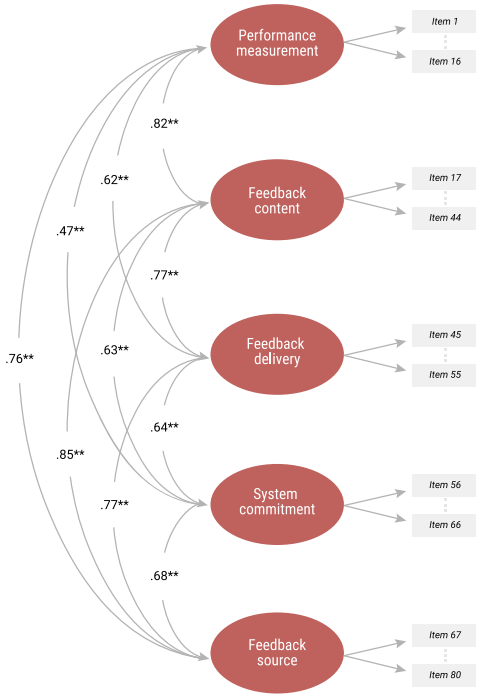


Figure 6
Standardized solution for the Five-Factor Model (Model 2)



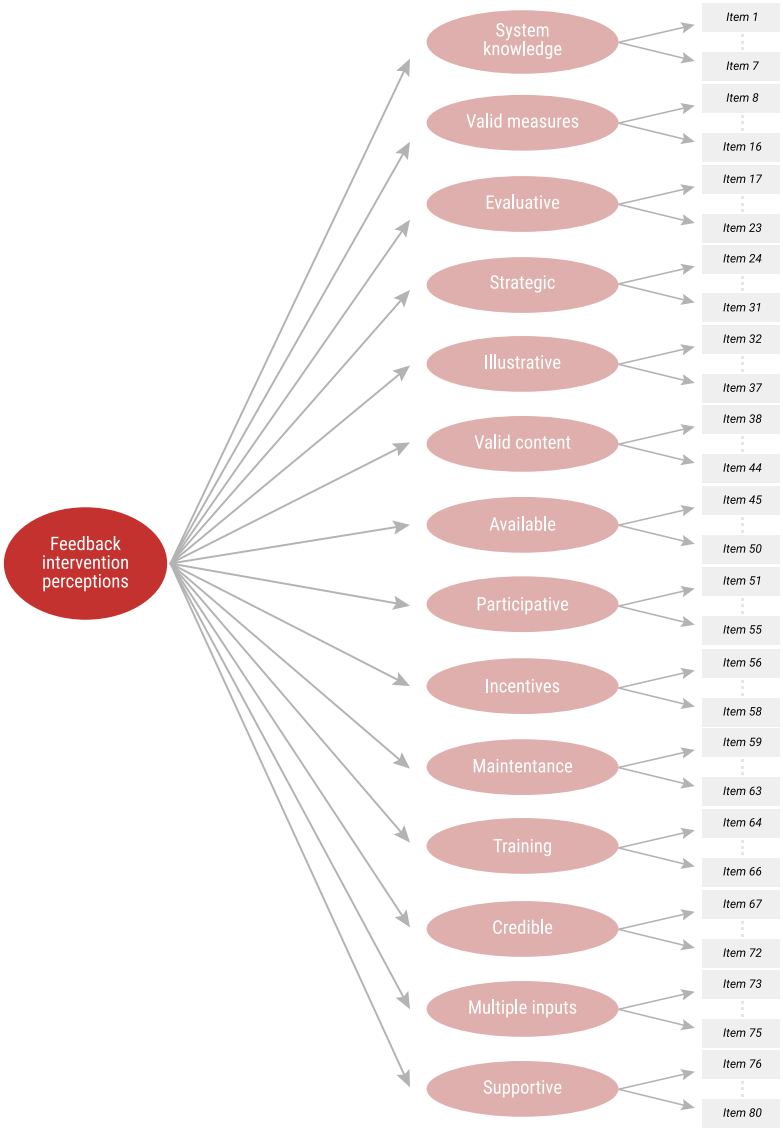
x^2 = 6058.60, *df* = 3075. CFI = .936, RMSEA = .073. ** = $p < .001$.

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



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

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



x^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 (α= .86) and incentive (α = .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 were 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 items 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. ** = Δx^2 *p* < .001. * = ΔCFI > .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 $p < .001$.

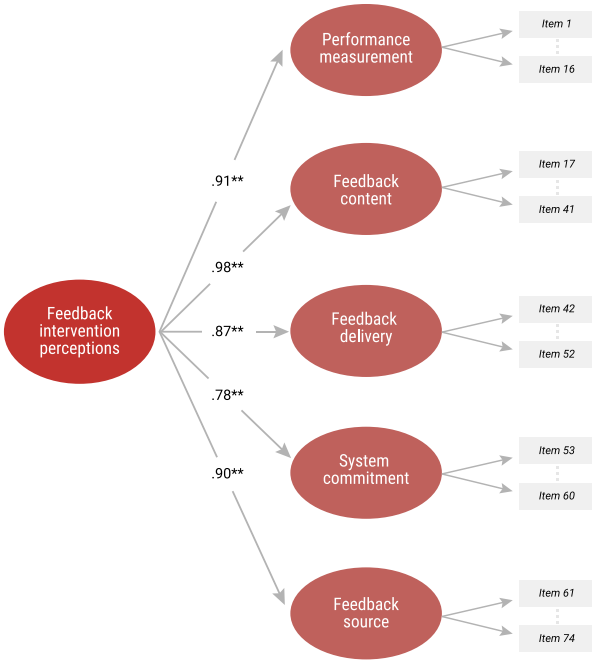
Table 10
Factor loadings for the Twelve-Factor solution

#	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

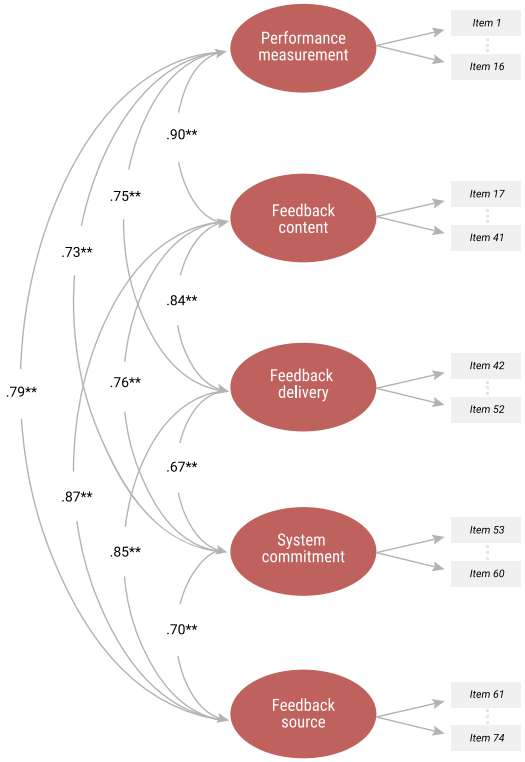
Note. $N = 294$. All loadings were significant at $p < .001$.

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



x^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)



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

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

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

Convergent and discriminant validity evidence

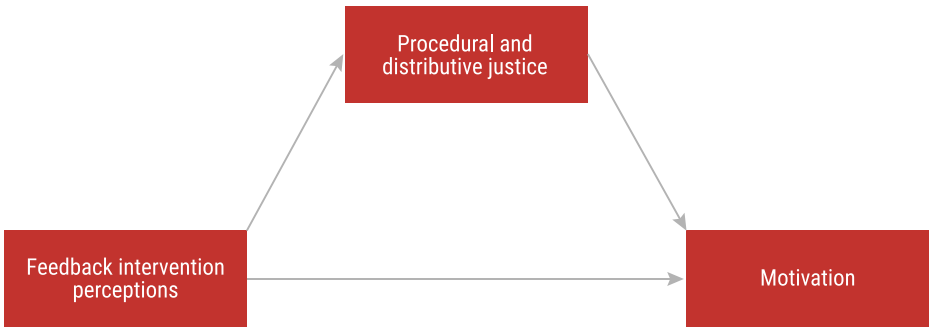
The relationships generally match expected patterns (Table 7). For example, the strong correlation between feedback content and utility (r = .80) would be expected as strategic and illustrative are two of the characteristics of this component. As a composite, the FIPS displayed strong, positive relationships 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

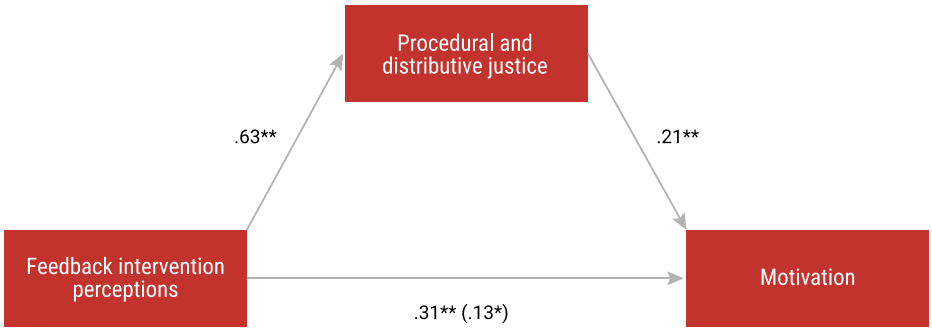
To test the mediation model presented in Figure 9, regression analyses were conducted using the PROCESS Procedure 2.13.1 for SPSS (Hayes, 2013). All demographic items were included in each of the models as covariates.

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)

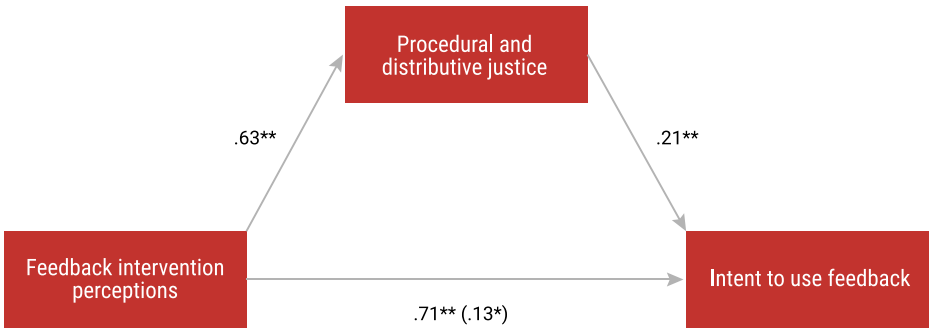


Note. The standardized indirect effect between FIPS and motivation is in parentheses. * $p < .05$, ** $p < .001$

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 effectiveness 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 process.
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.

References

Anderson, J. C. & Gerbing, D. W. (1991). Predicting performance of measures in confirmatory factor analysis with a pretest assessment of their substantive validities. *Journal of Applied Psychology*, 76(5), 732-740.

Bernthal, P.R., Rogers, R.W., & Smith, A.B. (2003). Managing performance: building accountability for organisational success. *HR Benchmark Group*, 4(2), 1-38.

Brayfield, A. H., & Rothe, H. F. (1951). An index of job satisfaction. *Journal of Applied Psychology*, *35*, 307-311.

Cammann, C., Fichman, M., Jenkins, D., & Klesh, J. (1979). The Michigan organizational assessment questionnaire. *Unpublished manuscript, University of Michigan, Ann Arbor.*

Cascio, W. F. & Aguinis, H. (2011). *Applied Psychology in Human Resource Management* (7th ed.). Upper Saddle River, NJ: Prentice Hall.

Colquitt, J. A., LePine, J. A., & Noe, R. A. (2000). Toward an integrative theory of training motivation: a meta-analytic path analysis of 20 years of research. *Journal of Applied Psychology*, *85*(5), 678.

DeNisi, A. S., & Pritchard, R. D. (2006). Performance appraisal, performance management and improving individual performance: A motivational framework. *Management and Organization Review*, *2*(2), 253-277. doi:10.1111/j.1740-8784.2006.00042.x

Dipboye, R. L., & De Pontbriand, R. (1981). Correlates of employee reactions to performance appraisals and appraisal systems. *Journal of Applied psychology*, *66*(2), 248.

Elicker, J. D., Levy, P. E., & Hall, R. J. (2006). The role of leader-member exchange in the performance appraisal process. *Journal of Managemen*t, *32*, 531-551.

Evans, E. M. & McShane, S. L. (1988). Employee perceptions of performance appraisal fairness in two organizations. *Canadian Journal of Behavioral Science*, *20*, 177-191.

Findley, H. M., Giles, W. F., & Mossholder, K. W. (2000). Performance appraisal process and system facets: Relationships with contextual performance. *Journal of Applied Psychology*, *85*(4), 634-640. doi:10.1037/0021-9010.85.4.634

Giles, W. F., Mossholder, K. W. (1990). Employee reactions to contextual and session components of performance-appraisal. *Journal of Applied Psychology*, *75*, 371-377.

Greller, M. M. (1975). Subordinate participation and reactions to the appraisal interview. *Journal of Applied Psychology*, *60*(5), 544-549.

Hayes, A. F. (2013). *Introduction to mediation, moderation, and conditional process analysis: A regression-based approach*. New York, NY: Guilford Press:

Ilgen, D. R., Barnes-Farrell, J. L., & McKellin, D. B. (1993). Performance appraisal process research in the 1980s: What has it contributed to appraisals in use? *Organizational Behavior and Human Decision Processes*, *54*(3), 321-368. doi:10.1006/obhd.1993.1015

Jawahar, I. M. (2010). The mediating role of appraisal feedback reactions on the relationship between rater feedback-related behaviors and ratee performance. *Group and Organization Management*, *35*(4), 494-526.

Jöreskog K. G. & Sörbom, D. (2006). *LISREL 8.80 for Windows [Computer Software]*. Lincolnwood, IL: Scientific Software International.

Judge, T. A., Bono, J. E., &: Locke, E. A. (2000). Personality and job satisfaction: The mediating role of job characteristics. *Journal of Applied Psychology*, *85*, 237-249.

Kedharnath, U., Garrison, L., & Gibbons, A. M. (2010). A Multidimensional Measure of Feedback Acceptance. Paper presented at the 25th Annual Conference of the Society for Industrial and Organizational Psychology, Atlanta, GA.

Keeping, L. M., & Levy, P. E. (2000). Performance appraisal reactions: Measurement, modeling, and method bias. *Journal of Applied Psychology*, *85*, 708-723.

Lee, I. A., & Preacher, K. J. (2013, September). Calculation for the test of the difference between two dependent correlations with one variable in common [Computer software]. Available from http://quantpsy.org.

Lizzio, A., Wilson, K., & MacKay, L. (2008). Managers' and subordinates' evaluations of feedback strategies: The critical contribution of Voice. *Journal of Applied Social Psychology*, *38*(4), 919-946.

Mulder, R. H. & Ellinger, A. (2013). Perceptions of quality of feedback in organizations: Characteristics, determinants, outcomes of feedback, and possibilities for improvement: Introduction to a Special Issue. *European Journal of Training and Development*, *37*(1), 4-23.

Murphy, K. R. & Cleveland, J. N. (1995). *Understanding performance appraisal: Social, organizational, and goal-based perspectives*. Thousand Oaks, CA: Sage.

Nemeroff, W. F., & Wexley, K. N. (1979). An exploration of the relationships between performance feedback interview characteristics and interview outcomes as perceived by managers and subordinates. *Journal of Occupational Psychology*, *52*(1), 25-34.

Pritchard, R. D. (1997). Motivation feedback system audit version 9. *Unpublished manuscript, University of Central Florida.*

Pritchard, R. D. (2010). Motivation assessment system version 072910. Unpublished.

Pritchard, R. D. & Wright, N. E (2020). How to avoid the 10 biggest problems in performance management. *InPractice, 14*, 8-37.

Roberson, Q. M. & Stewart, M. M. (2006). Understanding the motivational effects of procedural and informational justice in feedback processes. *British Journal of Psychology*, *97*, 281-298.

Roberts, G. E., & Reed, T. (1996). Performance appraisal participation, goal setting and feedback: The influence of supervisory style. *Review of Public Personnel Administration*, *16*(4), 29-60.

Taylor, M. S., Fisher, C. D., & llgen, D. R. (1984). Individuals' reactions to performance feedback in organizations: A control theory perspective. *Research in Personnel and Human Resources management*, *2*, 81-24.

Thomas, S. L. & Bretz, R. D. (1994). Research and practice in performance appraisal: Evaluating employee performance in America's largest companies. *SAM Advanced Management Journal*, *59*, 28-34.

Zhao, X., Lynch, J. G., & Chen, Q. (2010). Reconsidering Baron and Kenny: Myths and truths about mediation analysis. *Journal of Consumer Research*, *Inc.*, *37*, 197-206.

Supervisor feedback as a source of work engagement? The contribution of day-to-day feedback to job resources and work engagement

Roman Soucek and Annika Rupprecht

ROMAN SOUCEK
Friedrich-Alexander University Erlangen-Nürnberg, Germany
Roman.soucek@fau.de

ANNIKA RUPPRECHT
Friedrich-Alexander University Erlangen-Nürnberg, Germany
annika.rupprecht@fau.de

About the authors

PD Dr. Roman Soucek is a research associate at the Chair of Psychology, especially Organizational and Social Psychology, at the Friedrich-Alexander University Erlangen-Nürnberg. He received his doctorate and post-doctorate degree in the field of Work and Organizational Psychology. In his research, he is particularly interested in resilience in the work context, work intensification, personnel development and the evaluation of training interventions. Roman is a freelance trainer with many years of experience who is particularly keen to bridge the gap between science and practice.

Annika Rupprecht (M.Sc.) received her master's degree in Labour Market and Human Resources at FAU Erlangen-Nürnberg. She gained experience in the field of Work and Organizational Psychology through internships and her work at the Chair of Business and Social Psychology at FAU. She is now working in the public sector. She is mainly responsible for project consulting and implementing new ways of project and lean management.

Abstract

Work engagement of employees is crucial in today's working life that is increasingly characterized by virtual, flexible, and self-determined work arrangements. In such working environments, day-to-day supervisor feedback is gaining in importance, as feedback can be a powerful job resource and thus a key driver of work engagement. In flexible and agile working environments, leaders should also look into new ways of giving feedback to their followers. In this paper, we present a diary study that examines the contribution of supervisory feedback to job resources and work engagement, and thereby, differentiate between face-to-face feedback and computer-mediated feedback. The results substantiate the effectiveness of supervisor feedback on job resources, which in turn, contribute to work engagement. Furthermore, job resources moderated the influence of job demands on work engagement. This result clearly underlines the importance of job resources, as they may unleash the challenging potential of high demands.

Keywords: supervisor feedback, day-to-day feedback, job demands, job resources, work engagement

Introduction

Today's working life is undergoing major changes. Employees are collaborating in various teams on a virtual and non-virtual level (Gregor-Rauschtenberger & Hansel, 2001; Lange, 2019). Also, flexible work arrangements such as home office became popular (Klammer et al., 2017). Under these circumstances, employees' work engagement becomes more and more crucial, and organizations must create working conditions that provide enough resources and motivating potential. Among job resources, supervisor feedback is of great importance. However, when work is done asynchronously and you do not see each other every day, it is increasingly difficult to provide this resource to employees.

The present paper introduces a new way to provide day-to-day feedback, namely by means of a computer-mediated feedback system. Within a diary study we provide evidence for the contribution of supervisor feedback on job resources on the day-level and explore the interplay of job resources with job demands with reference to daily work engagement.

Determinants of work engagement

Work engagement is defined as a positive psychological state consisting of vigor, dedication, and absorption in work tasks (Schaufeli, Salanova, Gonzalez-Roma, & Bakker, 2002). It is associated with several positive aspects, such as a high level of energy and enthusiasm at work and is an important indicator of employees' well-being (Bakker & Demerouti, 2007). Work engagement can be conceptualized as a trait-like or state-like construct (Sonnentag, Dormann, & Demerouti, 2010). The trait-like conceptualization assumes that some people are more committed to work than others, whereas the state-like conceptualization focuses on the temporal perspective and asks why a person has different work engagements at different times. This latter conceptualization can relate to weeks (Bakker & Bal, 2010), days (Xanthopoulou, Bakker, Heuven, Demerouti, & Schaufeli, 2008), or even to specific tasks within a day (Reina-Tamayo, Bakker, & Derks, 2017). The present study focuses on work engagement on a day-level and explores the determinants and mechanisms that could explain varying levels of work engagement.

The job demands-resources model describes the determinants of work engagement and strain at work (Demerouti, Bakker, Nachreiner, & Schaufeli, 2001). This model assumes that factors in every occupational setting can be assigned to one of two

elementary categories, namely job demands and job resources (Bakker & Demerouti, 2007). Job demands refer to aspects of a workplace or a position that require effort and are associated with physiological as well as psychosocial costs. Typical candidates of job demands are a high workload, time pressure, or role conflicts at work. Contrary, job resources are aspects that promote the fulfillment of work goals, facilitate coping with high demands or stimulate personal growth (Bakker & Demerouti, 2014). Examples of job resources are autonomy or social support from colleagues. The job demands-resources model further assumes two different psychological processes in the development of job strain and motivation. First, high job demands might exhaust employees' physical and mental resources, and therefore, impair health and well-being. Second, high job resources provide a motivational potential leading to high work engagement (Bakker & Demerouti, 2007). This motivational path explains the emergence of work engagement. Job resources may even buffer the impact of job demands on well-being such as burnout (Bakker, Demerouti, & Euwema, 2005). Hence, job resources are an important starting point for the enhancement of work engagement and protection of well-being, and therefore, supervisors should be given tools to enhance and promote job resources of their employees.

Feedback as a management task

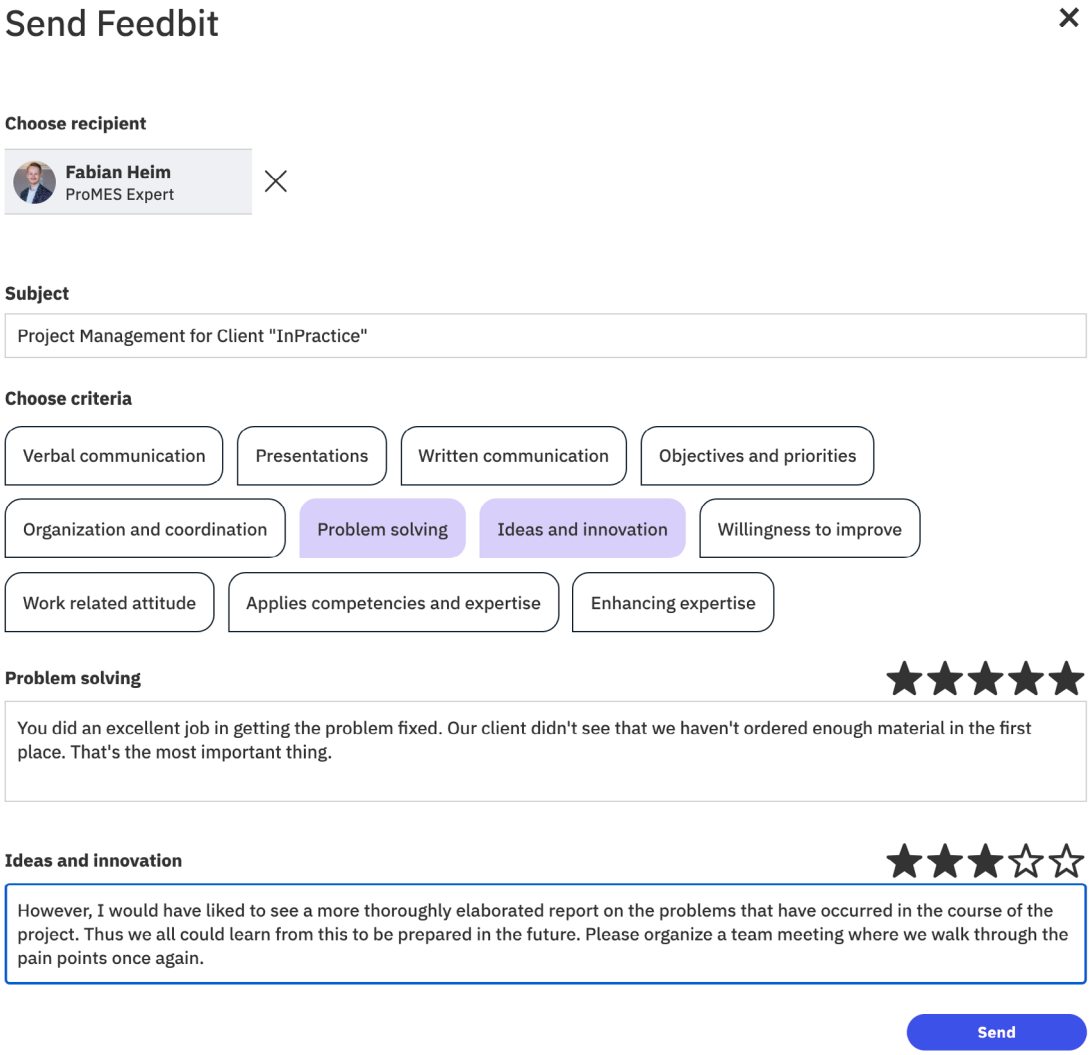
Feedback is one of the core job characteristics as described by Hackman and Oldham (1976) and perceived as a job resource (cf. Reina-Tamayo et al., 2017). Feedback relates employees' behaviors to goals and can arise either from the task itself, colleagues or the supervisor (London, 2015). Besides feedback from the task itself, feedback from others is defined as "the degree to which the employee receives clear information about his or her performance from supervisors or from co-workers" (Hackman & Oldham, 1975, p. 162). Feedback plays an important role because it clarifies role expectations, facilitates self-regulation, and it could enhance job performance by means of motivation and learning (Kluger & DeNisi, 1996). In fact, feedback is positively related to job satisfaction and negatively related to turnover intentions (Humphrey, Nahrgang, & Morgeson, 2007). Also, within the context of the Productivity Measurement and Enhancement System, or ProMES, feedback was positively associated with performance and motivation (Pritchard, Harrell, DiazGranados, & Guzman, 2008).

Feedback should be given in a constructive way in order to develop its positive effect on motivation and learning. Following the Feedback Intervention Theory (Kluger & DeNisi,

1996), constructive feedback should relate to tasks rather than to the person itself (Kluger & DeNisi, 1996). Also, constructive feedback should relate to positive behaviours or results that stem from the employee's knowledge, skills or talents (Aguinis, Gottfredson, & Joo, 2012). Finally, constructive feedback should be related to standards and – in case of negative performance feedack – provide strategies for remedying poor performance (Sommer & Kulkarni, 2012). Though constructive feedback is generally associated with work performance, high feedback immediacy and frequency can even compensate the negative impact of non-constructive feedback on work performance (Kuvaas, Buch, & Dysvik, 2016).

With the rise of digitalized workplaces and virtual teamwork, interpersonal communication changes (Schulze, Schultze, West, & Krumm, 2017) and supervisors need appropriate tools to provide constructive and frequent feedback to their employees. Besides relying on verbal feedback, we were able to use a feedback system that implements the idea of an instant and media-based feedback (Effecteev, 2020). This feedback system features the possibility for the supervisor or colleagues to send so called "feedbits" that contain concise ratings and remarks related to specific categories, which represent job related performance criteria for the respective employee. The supervisor can select the appropriate categories on which he wants to give feedback and for every chosen category the supervisor can submit a rating from one to five stars accompanied by a short message (cf. Figure 1). This feedback system fulfills some of the previously mentioned criteria for constructive feedback. First, it relates to standards that are represented by the (jointly) determined categories. Second, it provides the possibility to submit immediate feedback, and finally, facilitates the submission of frequent feedback.

Figure 1
Example Instant Feedback in the software



Hypotheses

We acknowledged the necessity of work engagement in modern workplaces and identified day-to-day feedback and job resources as starting points for the enhancement of work engagement. Relating to the job characteristics model (Hackman & Oldham, 1976) we assume that day-to-day supervisor feedback is perceived as (an episodic) job resource (Reina-Tamayo et al., 2017). Thus, we assume:

Hypothesis 1. Supervisor day-to-day feedback contributes to job resources.

Previous research has shown that several job resources predict work engagement (e.g., Halbesleben, 2010; Hakanen, Schaufeli, & Ahola, 2008; Salanova & Schaufeli, 2008), which is also true on a daily basis (Bakker & Bal, 2010; Reina-Tamayo et al., 2017). We therefore assume that job resources are associated with work engagement.

Hypothesis 2. Job resources are positively related to work engagement.

The combination of Hypotheses 1 and 2 posits an indirect effect of supervisor feedback on work engagement by means of job resources. Thus, we assume:

Hypothesis 3. Supervisor feedback exerts an indirect effect on work engagement by means of job resources.

Job resources are not only important due to their direct effect on work engagement. They also facilitate coping with strain, as they buffer against high job demands (Bakker et al., 2005), and therefore, contribute to work engagement (Bakker & Demerouti, 2008). To put it more simply, the level of work engagement varies according to the degree of job demands and job resources: High job demands and low job resources result in high strain and low work engagement, whereas high job demands and high job resources result in an average strain and high work engagement (Bakker & Demerouti, 2007, 2008). Therefore, job resources should have a positive impact on the relation between job demands and work engagement (Bakker & Demerouti, 2008; Hakanen, Bakker, Demerouti, 2005). Therefore, we assume:

Hypothesis 4. Job resources moderate the relationship between job demands and work engagement. In particular, job resources exert a positive effect on this relationship.

Method

Sample

Participants were recruited in two companies. In total, 10 employees (9 women, 1 man) participated in the study. The mean age was 24.90 years (*SD* = 2.69). The samples' professional experience averaged 1.52 years (*SD* = 1.66), mean job tenure was 1.13 years (*SD* = 0.88). Participation was voluntary; no monetary compensation or other incentives were provided.

Procedure

We conducted a multi-wave diary study with 24 waves. Day-to-day feedback was provided as face-to-face as well as digitalized feedback (Effecteev, 2020). The software

enabled managers to provide feedback instantly and regardless of the location of their employees. In order to provide a reference for feedback, the HR managers of the companies defined the most important performance criteria. These performance criteria were integrated into job profiles and supervisors could relate their feedback to these criteria. The HR managers carried out a feedback training with the supervisors in order to ensure the quality of feedback and introduced the supervisors to the use of the software. On the first day of data collection, the participants answered a questionnaire that assessed and collected demographic data. The daily questionnaires asked participants whether they received feedback from their supervisor and they also assessed job demands and job resources as well as work engagement for the respective day.

Measures

Feedback

We asked the participants whether they received feedback from their supervisor and asked for the source of feedback. Supervisor feedback and feedback source were contrast coded following the recommendations of Cohen, Cohen, West, and Aiken (2003). If the employees received feedback either face-to-face or as a "Feedbit" (digital instant feedback), we coded the variable supervisor feedback with + 1/3, in case of no feedback we coded -2/3. Concerning feedback source, we coded feedbit as +1/2 and face-to-face feedback as -1/2; if the employee has not received feedback, we coded 0.

Job demands

Daily job demands were assessed with two items (cf. Reina-Tamayo et al., 2017). The items were: "Did you work extra hard today?" (workload) and "Did you experience conflicting demands at work today?" (role conflict). Participants indicated their responses on a 7-point Likert-scale ranging from 1 (*does not apply at all*) to 7 (*applies completely*). Cronbach's α was .66.

Work engagement

Work engagement was assessed with three items of the Utrecht Work Engagement Scale (cf. Schaufeli & Bakker, 2004). The items were rephrased to refer to the current working day. The items were: "Today I felt full of energy at work." (vigor), "Today I felt enthusiastic about what I did at work." (dedication), and "Today I was totally immersed in what I did at work." (absorption). Participants indicated their responses on a 7-point frequency scale ranging from 1 (*never*) to 7 (*always*). Cronbach's α was .89.

Analyses

We tested the hypotheses by computing multilevel models with the measurement points on Level 1 and the participants on Level 2 (Singer & Willett, 2003). To control for changes over time, we considered the linear effects of time; the inclusion of additional higher order terms did not improve model fit. Since the questionnaires were answered 24 times, the respective constructs were repeatedly assessed, and thus can vary between the measurement points (Level 1) and between persons (Level 2). Therefore, we centered job demands and job resources before we entered them as predictors in the multilevel models (within person centering; cf. Curran & Bauer, 2011; Singer & Willett, 2003). To test for indirect effects within the framework of multilevel analysis, we controlled for the group-mean centered predictors at Level 2 (2-1-1 model; Zhang, Zyphur, & Preacher, 2009). Finally, a causal mediation analysis was conducted following the recommendations of Imai, Keele, and Tingley (2010). Effect sizes were calculated following Raudenbush and Xiao-Feng (2001). In particular, we related the unstandardized regression coefficients to the residual standard deviation (see also Feingold, 2009).

Results

Table 1 presents the descriptive statistics and correlations among the study variables. Interestingly, supervisor feedback is positively associated with job resources, $r = .25$, $p = .001$, as well as with work engagement, $r = .34$, $p < .001$. However, supervisor feedback was not related to the amount of job demands, $r = .11$, $p = .139$. Job demands and job resources were interrelated, $r = .66$, $p < .001$, and were positively associated with work engagement, $r = .33$, $p < .001$ (job demands), respectively, $r = .50$, $p < .001$ (job resources).

Table 1
Means, standard deviations, and correlations among study variables

	Scale	*M*	*SD*	1	2	3	4	5	6
1	Gender[a]	0.10	0.32						
2	Age	24.9	2.69	-.33**					
3	Supervisor feedback[b]	-	-	.13	-.17*				
4	Feedback source[c]	-	-	-.19*	.01	.18*			
5	Job demands	3.82	1.06	.07	-.37**	.11	-.01		
4	Job resources	4.77	0.54	-.02	-.32**	.25***	-.01	.66***	
5	Work engagement	4.30	0.65	.01	-.32**	.34***	.02	.33***	.50***

Notes. *N* = 173. [a]Gender was dummy coded with 0 (*female*) and 1 (*male*); [b]Supervisor feedback was contrast coded with +1/3 (*feedback received*) and - 2/3 (*no feedback received*); [c]Feedback source was contrast coded with +1/2 (*feedbit*) and - 1/2 (*face-to-face feedback*); *p < .05; **p < .01; ***p < .001.

Effect of supervisor feedback on job demands and job resources

Table 2 presents several models that predict job demands and job resources. In Model 1a job demands were regressed on the control variables gender and age. The linear effect of time (i.e. predictor day) points to no change in time, b = 0.01, p = .186 (linear effect). In Model 1b, we additionally considered the effect of supervisor feedback, which was revealed as not significant, b = 0.04, p = .776. Also, feedback source has no influence on job demands, b = 0.07, p = .808. Similarly, we computed two models to predict job resources. Model 2a again included demographic variables and controlled for the development in time. Among the demographic variables, age had a negative influence on job resources, b = −0.15, p = .030. That is, older participant indicated a lower level of job resources. In Model 2b, we additionally considered the effect of supervisory feedback, which indicated a positive influence on job resources, b = 0.51, p < .001. The effect size was, d = 0.71. This result confirms Hypothesis 1. Concerning the feedback source, the results indicated no influence on job resources, b = −0.28, p = .237.

Table 2
Effect of the supervisor daily feedback on job demands and job resources

Variables	Job demands		Job resources	
	Model 1a	Model 1b	Model 2a	Model 2b
		Fixed effects		
(Intercept)				
Level 1 (within-subject)	9.97**	9.94**	8.59***	8.44***
Day	0.01	0.01	0.01	0.01
Supervisor feedback		0.04		0.51***
Feedback source		0.07		-0.28
Level 2 (between-subjects)				
Gender[a]	-0.53	-0.52	-0.90	-1.12
Age	-0.25	-0.25	-0.15*	-0.14*
		Random effects		
Level 1 (within-subject)				
Residual variance σ^2	0.66***	0.66***	0.55***	0.51***
Level 2 (between-subjects)				
Intercept/Intercept τ_{00}	0.72***	0.72***	0.16***	0.16***
		Model fit		
Deviance (*-2LL*)	448.40	448.21	406.29	393.11
Change in Deviance (Δ*-2LL*)		0.19		13.18**
AIC	460.40	464.21	418.29	409.11
BIC	479.32	489.44	437.21	434.34

Notes. *N* = 173. [a]Gender was dummy coded with 0 (*female*) and 1 (*male*); [b]Supervisor feedback was contrast coded with +1/3 (*feedback received*) and - 2/3 (*no feedback received*); [c]Feedback source was contrast coded with +1/2 (*feedbit*) and - 1/2 (*face-to-face feedback*); *p < .05; **p < .01; ***p < .001.

Effect of supervisor feedback, job demands, and job resources on work engagement

Table 3 presents the models that tested the influence of supervisor feedback and feedback source as well as job demands and job resources on work engagement. Model 3a included demographic variables and the effect of time. Model 3b additionally included supervisor feedback, which was revealed as effective regarding an increase

in work engagement, b = 0.67, p < .001. Feedback source had no influence in work engagement, b = −0.14, p = .671. Model 3c considers job demands and resources on Level 2 (between-subjects) and Level 1 (within-subject). The mean level of job demands (between-subjects) was positively related to work engagement, b = 0.89, p = .006, whereas the mean level of job resources (between-subjects) was negatively related to work engagement, b = −1.54, p = .021. However, the within-subject effects revealed no effect of job demands, b < −0.00, p = .973. Contrary to job demands, daily fluctuations of job resources (within-subject) exerted a positive influence on work engagement, b = 0.62, p < .001, which confirms Hypothesis 2. The effect size was d = 0.71. Overall, the daily level of job resources contributed to work engagement.

Table 3
Effects of supervisor daily feedback, job demands, and job resources on work engagement

Variables	Work engagement			
	Model 3a	Model 3b	Model 3c	Model 3d
		Fixed effects		
(Intercept)				
Level 1 (within-subject)	9.32***	9.06***	13.58**	13.11**
Day	-0.01	-0.01	-0.01	-0.01
Supervisor feedback		0.67***	0.36*	0.34*
Feedback source		-0.14	0.03	0.05
Job demands (w.s.)			-0.00	-0.02
Job resources (w.s.)			0.62***	0.64***
Job demands x job resources				0.28*
Level 2 (between-subjects)				
Gender[a]	-1.07	-1.26	-2.08**	-1.85**
Age	-0.19**	-0.17**	-0.19**	-0.19**
Job demands (b.s.)			0.89**	0.83*
Job resources (b.s.)			-1.54*	-1.46*
		Random effects		
Level 1 (within-subject)	9.32***	9.06***	0.77***	0.74***
Residual variance σ^2	1.02***	0.97***	0.03***	0.04***
Level 2 (between-subjects)	9.32***	9.06***	0.77***	0.74***
Intercept/Intercept τ_{00}	0.15***	0.09***	0.03***	0.04***

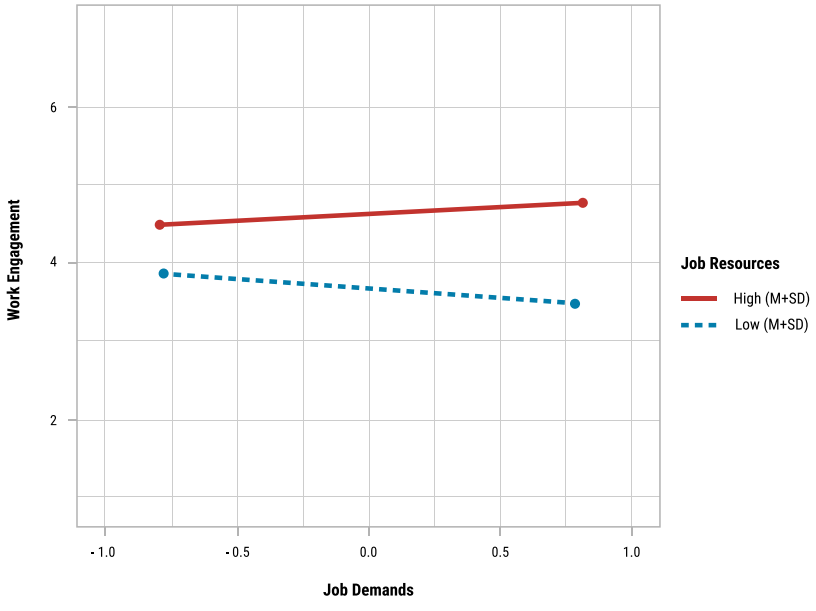
			Model fit	
Deviance (*-2LL*)	506.31	494.20	450.54	445.95
Change in Deviance (Δ*-2LL*)		12.12**	43.66**	4.59*
AIC	518.31	510.20	474.54	471.95
BIC	537.23	535.43	512.38	512.95

Notes. *N* = 173. [a]Gender was dummy coded with 0 (*female*) and 1 (*male*); [b]Supervisor feedback was contrast coded with +1/3 (*feedback received*) and - 2/3 (*no feedback received*); [c]Feedback source was contrast coded with +1/2 (*feedbit*) and - 1/2 (*face-to-face feedback*); *p < .05; **p < .01; ***p < .001.

Hypothesis 3 assumed an indirect effect of supervisor feedback on work engagement by means of job resources. We tested this indirect effect following the procedures by Zhang and colleagues (2009) and Imai and colleagues (2010). In particular, we chose the within-subject effect of job resources as mediator, while statistically controlling for the between-subject effect of job resources. Mediation analysis provided support for this assumption, b = 0.32, p < .001, *CI*95[0.142; 0.533]. Thus, Hypothesis 3 was confirmed.

In Model 3d, we additionally considered the interaction effect between the within-subject effects of job demands and job resources. The interaction effect is positive, b = 0.28, p = .030, d = 0.32, which indicates that work engagement is stronger in case of high job resources and job demands, which confirms Hypothesis 4. The interaction effect is depicted in Figure 2.

Figure 2
Interaction of Job Resources and Job Demands and their Influence on Work



Discussion

The present study introduced day-to-day feedback as an important job resource in today's working life, which is increasingly characterized by virtual collaboration and self-determined work arrangements. The results revealed that daily supervisor feedback contributed to job resources. Furthermore, the daily level of job resources was associated with work engagement. This result accords to the job demands-resources model indicating that job resources contribute to work engagement (Demerouti et al., 2001; Bakker & Demerouti, 2007). Furthermore, the results provided evidence that job resources further contribute to work engagement as they buffer the negative impact of job demands on work engagement.

This study contributes to literature in several ways. First, it demonstrates that supervisor day-to-day feedback contributes to job resources, which confirms previous results (e.g., Reina-Tamayo et al., 2017). Regarding this positive influence of supervisor feedback on job resources, the results provided evidence that the perception of job resources could be indeed influenced by day-to-day feedback, which provides an effective starting point for supervisors' daily performance management. We also controlled for feedback source and found no difference in feedback provided either face-to-face or as digitalized feedback. Thus, both feedback sources seem to be equivalent in their effectiveness, and therefore, the provision of digitalized feedback could be a viable alternative to verbal feedback.

Second, the results showed that job demands and job resources were associated with work engagement on a between-subject level, which confirms previous results (Crawford, LePine, & Rich, 2010; Schaufeli & Bakker, 2004). Beyond these between-subject effects, the present study demonstrated that varying levels of job resources were associated with the daily level of work engagement, which contributes to the episodic engagement model (Reina-Tamayo et al., 2007). We also found evidence for an indirect effect, namely, that day-to-day feedback exerts its influences on work engagement by an altered perception of job resources, which provides further evidence for the motivational process of the job demands-resources model (Xanthopoulou et al., 2008) and sheds light on the mechanisms by which supervisor feedback unfolds its effectiveness.

Finally, we demonstrated that the impact of job demands on work engagement depends on daily job resources. In particular, the results point to a positive contribution of

job demands in case of high job resources, whereas low job resources may lead to a negative influence of job demands on work engagement. Such a different influence of job demands was shown by Crawford and colleagues (2010) as they draw the distinction between challenge and hindrance demands. Please note that Crawford and colleagues (2010) classified different demands either as challenge or hindrance demands. In the present study, we observed an influence of job resources on the same job demands. Hence, job resources may influence the perception of a given set of job demands. Being equipped with high job resources, employees might interpret job demands as challenges rather than hindrances. This result clearly underlines the importance of job resources, as they may unleash the challenging potential of high demands (Hakanen & Roodt, 2010).

Limitations

The study has some limitations that need to be mentioned. First, the sample size was rather small, restricting statistical power and the possibilities of statistical analyses. Therefore, we limited the statistical analyses to the questions on whether supervisor feedback was received and on the feedback source. Nevertheless, the diary study included a high amount of measurement points, and therefore, we were able to draw some conclusions from the statistical analyses. Further studies with a larger sample sizes could include additional information such as feedback characteristics (e.g., specificity of the feedback) or task characteristics. For example, the complexity of the tasks might vary in different occupations and we expect feedback being more important for complex tasks. Second, we relied on self-report measures that might result in common method bias. Future studies should combine self-report measures with objective criteria such as work performance or add an external assessment from supervisors or colleagues. Third, the questionnaire was answered in the evening, and thus, participants assessed their working day retrospectively. Since exhaustion usually occurs at the end of the day, this might have influenced the assessment of work engagement. However, we asked the participants to evaluate the job demands and job resources of the whole day, which was only possible at the end of the day. Finally, the supervisors that participated in this study were trained in giving constructive and effective feedback, and thus, the results are restricted to similar implementations. Therefore, the introduction of day-to-day feedback practices should be accompanied with supervisors being trained in the provision of feedback.

Directions for future research

In the current study, the performance criteria were developed and defined by the respective personnel managers and the employees were solely informed about the performance criteria (cf. tell-and-sell strategy, Latham, Erez, & Locke, 1988). In future studies employees should be involved in the development and definition of performance criteria. Being involved in this goal setting process, performance criteria should be more relevant for employees, and feedback might be more specific to the respective positions.

The supervisors and employees were not working in different locations and the supervisors had the opportunity to provide instant and informal feedback. Therefore, we asked participants to indicate the source of feedback received (i.e., face-to-face or digitalized feedback). Since we observed no difference in the effectiveness of feedback for these two paths of feedback, we concluded that both ways are equivalent. However, future research should investigate the effectiveness of digitalized feedback in completely virtualized work environments in order to scrutinize its effectiveness more explicitly.

In the present study we operationalized job demands by means of workload and role conflicts. However, there are other job demands such as administrative hassles (Crawford et al., 2010), that could be investigated in future studies. Also, additional job resources such as social support (Hakanen et al., 2008) or organizational climate (Bakker et al., 2007) should be considered in further research. Besides organizational job resources, personal resources also influence the relationship between job demands and work engagement. For example, Bakker, Schaufeli, Leiter and Taris (2008) argued that personal resources such as optimism or self-efficacy can influence work engagement. Furthermore, personal resources could mediate the relationship between job resources and work engagement (Xanthopoulou, Bakker, Demerouti, & Schaufeli, 2007).

Practical implications

Feedback remains an important instrument in leadership. Just as jobs get digitalized and virtualized, management tools must adapt to these new forms of work and employees should receive feedback even if they are working in their home office or in another location. Digitalized feedback systems can close the gap and ensure the

motivational effect of feedback. However, with media-mediated feedback, it is all the more important that the feedback is accurate and high in quality. Therefore, supervisors should be trained in giving feedback on a regular basis. But also, employees should understand and appreciate the value of feedback. Therefore, companies should promote a culture in which giving and receiving feedback is part of everyday business.

Conclusion

Day-to-day feedback provides supervisors with an effective tool to promote their employees' work engagement. In particular, supervisor feedback unfolds its effectiveness as a job resource, which is particularly important in case of high job demands. The present diary study shows that day-to-day feedback takes effect on the same day. Why not give it a try today?

References

Aguinis, H., Gottfredson, R. K., & Joo, H. (2012). Delivering effective performance feedback: The strengths-based approach. *Business Horizons*, *55*, 105–111. doi:10.1016/j.bushor.2011.10.004

Bakker, A. B., & Bal, P. M. (2010). Weekly work engagement and performance: A study among starting teachers. *Journal of Occupational and Organizational Psychology*, *83*, 189-206. doi:10.1348/096317909X402596

Bakker, A. B., & Demerouti, E. (2007). The job demands-resources model: State of the art. *Journal of Managerial Psychology*, *22*, 309-328. doi:10.1108/02683940710733115

Bakker, A. B., & Demerouti, E. (2008). Towards a model of work engagement. *Career Development International*, *13*, 209-223. doi:10.1108/13620430810870476

Bakker, A. B., & Demerouti, E. (2014). Job demands – resources theory. In C. Cooper & P. Chen (Eds.), *Wellbeing: A complete reference guide* (pp. 37-64). Chichester, UK: Wiley-Blackwell.

Bakker, A. B., Demerouti, E., & Euwema, M. C. (2005). Job resources buffer the impact of job demands on burnout. *Journal of Occupational Health Psychology*, *10*, 170–180. doi:10.1037/1076-8998.10.2.170

Bakker, A. B., Hakanen, J. J., Demerouti, E., & Xanthopoulou, D. (2007). Job resources boost work engagement, particularly when job demands are high. *Journal of Educational Psychology*, *99*, 274-284. doi:10.1037/0022-0663.99.2.274

Bakker, A. B., Schaufeli, W. B., Leiter, M. P., & Taris, T. W. (2008). Work engagement: An emerging concept in occupational health psychology. *Work & Stress*, *22*, 3, 187-200. doi:10.1080/02678370802393649

Cohen, J., Cohen, P., West, S. G., & Aiken, L. S. (2003). *Applied multiple regression/correlation analysis for the behavioral sciences* (3rd ed.). Mahwah, NJ: Lawrence Erlbaum.

Crawford, E. R., LePine, J. A., & Rich, B. L. (2010). Linking job demands and resources to employee engagement and burnout: A theoretical extension and meta-analytic test. *Journal of Applied Psychology*, *95*, 834-848. doi:10.1037/a0019364

Curran, P. J., & Bauer, D. J. (2011). The disaggregation of within-person and between-person effects in longitudinal models of change. *Annual Review of Psychology*, *62*, 583–619. doi:10.1146/annurev.psych.093008.100356

Demerouti, E., Bakker, A. B., Nachreiner, F., & Schaufeli, W. B. (2001). The job demands-resources model of burnout. *Journal of Applied Psychology*, *86*, 499–512. doi:10.1037/0021-9010.86.3.499

Effecteev [Computer software]. (2020). Retrieved from http://www.effecteev.de/en/

Feingold, A. (2009). Effect sizes for growth-modeling analysis for controlled clinical trials in the same metric as for classical analysis. *Psychological Methods*, *14*, 43–53. doi:10.1037/a0014699

Gregor-Rauschtenberger, B., & Hansel, J. (2001) Die Bedeutung von Projektarbeit im Unternehmen. In B. Gregor-Rauschtenberger & J. Hansel (Eds.), *Innovative Projektführung Erfolgreiches Führungsverhalten durch Supervision und Coaching* (pp. 13–14). Berlin, Heidelberg: Springer.

Hackman, J. R., & Oldham, G. R. (1975). Development of the Job Diagnostic Survey. *Journal of Applied Psychology*, *60*, 159–170. doi:10.1037/h0076546

Hackman, J. R., & Oldham, G. R. (1976). Motivation through the design of work: Test of a theory. *Organizational Behavior and Human Performances*, *16*, 250–279. doi:10.1016/0030-5073(76)90016-7

Hakanen, J. J., & Roodt, G. (2010). Using the job demands-resources model to predict engagement: Analysing a conceptual model. In: Bakker, A. B., & Leiter, M. P. (Eds.), *Work engagement: A handbook of essential theory and research* (pp. 85–101). Hove New York: Psychology Press.

Hakanen, J. J., Bakker, A. B., & Demerouti, E. (2005). How dentists cope with their job demands and stay engaged: The moderating role of job resources. *European Journal of Oral Sciences*, *113*, 479-487. doi:10.1111/j.1600-0722.2005.00250.x

Hakanen, J. J., Schaufeli, W. B., & Ahola, K. (2008). The job demands-resources model: A three-year cross-lagged study of burnout, depression, commitment, and work engagement. *Work & Stress*, *22*, 224-241. doi:10.1080/02678370802379432

Halbesleben, J. R. B. (2010). A meta-analysis of work engagement: Relationships with burnout, demands, resources, and consequences. In A. B. Bakker & M. P. Leiter (Eds.), *Work engagement: A handbook of essential theory and research* (pp. 102-117). Hove New York: Psychology Press.

Humphrey, S. E., Nahrgang, J. D., & Morgeson, F. P. (2007). Integrating motivational, social, and contextual work design features: A meta-analytic summary and theoretical extension of the work design literature. *Journal of Applied Psychology*, *92*, 1332-1356. doi:10.1037/0021-9010.92.5.1332

Imai, K., Keele, L., & Tingley, D. (2010). A general approach to causal mediation analysis. *Psychological Methods*, *15*, 309–334. doi:10.1037/a0020761

Klammer, U., Steffes, S., Maier, M. F., Arnold, D., Stettes, O., Bellmann, L., & Hirsch-Kreinsen, H. (2017). Arbeiten 4.0 – Folgen der Digitalisierung für die Arbeitswelt. *Wirtschaftsdienst*, *97*, 459-476. doi:10.1007/s10273-017-2163-9

Kluger, A. N., & DeNisi, A. (1996). The effects of feedback interventions on performance: A historical review, a meta-analysis, and a preliminary feedback intervention theory. *Psychological Bulletin*, *119*, 254-284. doi:10.1037/0033-2909.119.2.254

Kuvaas, B., Buch, R., & Dysvik, A. (2016). Constructive supervisor feedback is not sufficient: Immediacy and frequency is essential. *Human Resource Management*, *56*, 519–531. doi:10.1002/hrm.21785

Lange, J. (2019). Einführung in das Feel Good Management. In J. Lange (Hrsg.), *Feel Good Management-Anforderungen und Aufgabengebiete* (S. 1-21). Berlin, Heidelberg: Springer Gabler.

Latham, G. P., Erez, M., & Locke, E. A. (1988). Resolving scientific disputes by the joint design of crucial experiments by the antagonists: Application to the Erez–Latham dispute regarding participation in goal setting. *Journal of Applied Psychology*, *73*, 753-772. doi:10.1037/0021-9010.73.4.753

London, M. (2015). The power of feedback giving, seeking, and using feedback for performance improvement. New York and London: Routledge.

Pritchard, R.D., Harrell, M.M., DiazGranados, D., & Guzman, M. J. (2008). The Productivity Measurement and Enhancement System: A Meta-Analysis. *Journal of Applied Psychology*, *93*, 540–567. doi:10.1037/0021-9010.93.3.540

Raudenbush, S. W., & Xiao-Feng, L. (2001). Effects of study duration, frequency of observation, and sample size on power in studies of group differences in polynomial change. *Psychological Methods*, *6*, 387–401. doi:10.1037/1082-989x.6.4.387

Reina-Tamayo, A. M., Bakker, A. B., & Derks, D. (2017). Episodic demands, resources, and engagement. *Journal of Personnel Psychology*, *16*, 125-136. doi:10.1027/1866-5888/a000177

Salanova, M., & Schaufeli, W. B. (2008). A cross-national study of work engagement as a mediator between job resources and proactive behaviour. *The International Journal of Human Resource Management*, *19*, 116-131. doi:10.1080/09585190701763982

Schaufeli, W. B., & Bakker, A. B. (2004). Job demands, job resources, and their relationship with burnout and engagement: A multi-sample study. *Journal of Organizational Behavior*, *25*, 293-315. doi:10.1002/job.248

Schaufeli, W. B., & Bakker, A. B. (2004). UWES Utrecht Work Engagement Scale – Preliminary Manual. Utrecht, The Netherlands.

Schaufeli, W. B., Salanova, M., González-Romá, V., & Bakker, A. B. (2002). The measurement of engagement and burnout: A two sample confirmatory factor analytic approach. *Journal of Happiness Studies*, *3*, 71-92. doi:10.1023/A:1015630930326

Schmidt, K.-H., Kleinbeck, U., Ottmann, W., & Seidel, B. (1985). Ein Verfahren zur Diagnose von Arbeitsinhalten: Der Job Diagnostic Survey (JDS). Psychologie und Praxis. *Zeitschrift für Arbeits- und Organisationspsychologie*, *29*, 162-172.

Schulze, J., Schultze, M., West, S. G., & Krumm, S. (2017). The knowledge, skills, abilities, and other characteristics required for face-to-face versus computer-mediated communication: Similar or distinct constructs? *Journal of Business and Psychology*, *32*, 283-300. doi:10.1007/s10869-016-9465-6

Singer, J. D., & Willett, J. B. (2003). *Applied longitudinal data analysis: Modeling change and event occurrence.* New York: Oxford University Press.

Sommer, K. L., & Kulkarni, M. (2012). Does constructive performance feedback improve citizenship intentions and job satisfaction? The roles of perceived opportunities for advancement, respect, and mood. *Human Resource Development Quarterly*, *23*, 177–201. doi:10.1002/hrdq.21132

Sonnentag, S., Dormann, C., & Demerouti, E. (2010). Not all days are created equal: The concept of state work engagement. In: Bakker, A. B., & Leiter, M. P. (Eds.), *Work engagement: A handbook of essential theory and research* (pp. 25-38). New York: Psychology Press.

Xanthopoulou, D., Bakker, A. B., Demerouti, E., & Schaufeli, W. B. (2007). The role of personal resources in the job demands-resources model. *International Journal of Stress Management*, *14*, 121-141. doi:10.1037/1072-5245.14.2.121

Xanthopoulou, D., Bakker, A. B., Heuven, E., Demerouti, E., & Schaufeli, W. B. (2008). Working in the sky: A diary study on work engagement among flight attendants. *Journal of Occupational Health Psychology*, *13*, 345-356. doi:10.1037/1076-8998.13.4.345

Zhang, Z., Zyphur, M. J., & Preacher, K. J. (2009). Testing multilevel mediation using hierarchical linear models: Problems and solutions. *Organizational Research Methods, 12*, 695–719. doi:10.1177/1094428108327450

Innovative work design in the hotel industry - effects of a team intervention on team productivity, job crafting and work engagement

Colin Roth, Moritz Reichert and Sabrina Ulrich

COLIN ROTH
BlackBox/Open®, Nürnberg, Germany
cr@blackboxopen.com

MORITZ REICHERT
BlackBox/Open®, Nürnberg, Germany
mr@blackboxopen.com

SABRINA ULRICH
BlackBox/Open®, Nürnberg, Germany
sabrina_ulrich@gmx.de

About the authors

Dr. Colin Roth is managing director of BlackBox/Open GmbH & Co. KG. and Feedbit Software GmbH. He received his PhD in Work and Organizational Psychology at FAU Erlangen-Nürnberg. He is co-founder of ProMES-ICC, the International Competence Centre for ProMES. Colin advises on leadership, team development, and organizational development. He is lecturer at FAU Erlangen-Nürnberg, the University of Central Florida, and the TH Nürnberg.

Moritz Reichert (M.Sc.) is a consultant at BlackBox/Open GmbH & Co. KG. He received his master's in Psychology at the FAU Erlangen-Nürnberg with a focus on Work and Organizational Psychology. Moritz advises on ProMES, job crafting and virtual collaboration.

Sabrina Ulrich (M.Sc.) is a Change Manager and Client Account Leadership Manager at a Fortune Global 500 Company. After her studies at FAU Erlangen-Nuremberg in Human Resources and Labor Market with a major in Organizational Psychology, she worked as a Consultant at BlackBox/Open. Today, Sabrina is managing change programs during large business and IT transformations for the world's leading companies (Fortune Global 100 & 500), while also shaping their workforce of the future leveraging co-creation and innovation methodologies.

Abstract

The Productivity Measurement and Enhancement System (ProMES) was introduced in four departments of a hotel. We assumed that the introduction of ProMES would lead to a productivity improvement of the departments involved as well as to increased job crafting and work engagement among the participants. In line with our expectations, the multi-level analysis confirmed a positive relationship between ProMES and job crafting behaviours of employees during the feedback phase. At the same time, the introduction of ProMES revealed significant gains in productivity. However, the assumed positive relationship between ProMES and work engagement could not be confirmed.

Keywords: ProMES, job crafting, work engagement

Introduction

Hotel and restaurant industries in Germany are particularly affected by the shortage of skilled workers. In the current industry report (Dehoga-Bundesverband, 2019) of spring 2019, 60% of companies saw their biggest challenge in the recruitment of qualified personnel. At the same time, tourist offices in larger cities, set new records every year: While there were still 9.71 million city travellers in 2015 (German-speaking citizens over the age of 14), this number rose to 11.03 million in 2018 (Statista, 2019). However, the hotel and restaurant industry not only has to cope with the shortage of skilled professionals, but also with digitalisation. The hotel industry is one of the sectors most affected by digital trends such as rating portals, online booking portals, and disruptive business models like AirBnB. As a result, hotels are facing increased pressure to receiving and keeping positive reviews.

Hotel personnel not only must meet high performance standards, they are also required to develop creative and innovative solutions in order to stay competitive. From a work and organizational psychology perspective, the industry is facing a dilemma: the demands seem to be constantly increasing while resources are shrinking. According to the Job Demands Resources Model (short: JD-R; Demerouti, Bakker, Nachreiner, & Schaufeli, 2001), this represents a critical state for individual employees, as well as for the organization as a whole. Under stress, new solutions cannot be developed. Maintaining the status quo is not enough to remain competitive. Organizations ask themselves how they can succeed in increasing the quality of services (Salanova, Agut, & Peiro, 2005), and at the same time creating working conditions that enable emotionally and physically demanding activities to be designed in a way that stressors like long working hours or work-family conflicts are reduced (Karatepe, Beirami, Bouzari, & Safavi, 2014). Moreover, is it even possible to create framework conditions in which people can outgrow, mature and thrive (Karatepe et al., 2014; Niessen, Sonnentag, & Sach, 2012)?

In this context, various studies in the performance management literature show that top-down methods are not very promising to foster work performance (O'Leary & Pulakos, 2011). From a top-down performance management perspective, employees are usually assigned a rather passive role as they are merely seen to be recipients of their job (Wrzesniewski, 2013). One promising possibility in order to foster individual growth and to establish a feedback culture, is to use bottom-up methods to link

activities to the needs of employees. The Productivity Measurement and Enhancement System (ProMES) is such a bottom-up method (Pritchard, 1990; Pritchard, Kleinbeck, & Schmidt, 1993; Pritchard, Weaver, & Ashwood, 2012). ProMES is an evidence-based management system for measuring and increasing work group performance (DeNisi & Murphy, 2017; Pritchard, Harrell, DiazGranados, & Guzman, 2008; Rousseau, 2012; Scaduto, Hunt, & Schmerling, 2015).

ProMES: Concept and current state of research

The ProMES research project started in the United States in the mid-1980s (Pritchard, Jones, Roth, Stuebing, & Ekeberg, 1988, 1989). While ProMES had primarily only been used in professional teams, by now a number of scientifically documented applications have been conducted in other areas, such as competitive sports (Roth, Young, Koenig, Schmerling, & Pritchard, 2017), or for the promotion of individual competencies (Minelli, 2008; For further information visit www.promes-icc.com). ProMES is developed bottom-up: The team members jointly decide on the most important objectives and define indicators themselves. Besides typical outcome measures, aspects measuring attitudes, behaviours, qualifications or learning of teams and group members are collected (Schmelzer, 2018). The direct supervisor is part of a design team, the top management participates in a supervisory role and provides impulses and suggestions for the design team. The team regularly receives detailed feedback based on the objectives and indicators developed and coordinated with the management (Pritchard et al., 2012).

ProMES is based on essential psychological theories such as the goal setting theory (Latham, Erez, & Locke, 1988; Latham & Locke, 2007) or the feedback intervention theory (Kluger & DeNisi, 1996). However, the methodology is essentially based on the NPI theory (Naylor, Pritchard, & Ilgen, 1980; Pritchard & Ashwood, 2008). According to the theory, motivation is a process in which a person allocates their available physical, mental and emotional resources into different actions, so that the expected satisfaction of needs, resulting from the consequences of these actions, is as high as possible. ProMES tries to directly influence this process: goals and measurement criteria are defined together as a team – a process on which basis goal achievement is made measurable and strategies can be developed to achieve these goals.

This approach pays off: In their meta-analysis (k = 83), Pritchard and colleagues (2008) report an average effect size d of the intervention on the group performance of 1.44.

Further studies have shown that ProMES also stimulates important communication and role clarification processes in the team (Pritchard et al., 1993; Przygodda, Beckmann, Kleinbeck, & Schmidt, 1995). Furthermore, ProMES also has a positive impact on psychosocial factors such as job satisfaction (Pritchard et al., 1989), team conflicts (Fuhrmann, 1999), and team climate (Agrell & Malm, 2002; Roth & Moser, 2005, 2009). It can be concluded that ProMES succeeds in promoting the performance of work groups without creating an imbalance between resources and demands among the employees involved. While most of the studies presented so far are dealing with the impact of ProMES on group effectiveness (e.g. Pritchard et al., 2008), only a few examine the effects on the individual team members. A recent study in healthcare (Arapovic-Johansson et al., 2018) reports that members of teams who worked with ProMES, did not react with an increased stress level after being exposed to a higher workload as the control group members did. Nevertheless, the number of studies investigating the question of how ProMES affects the individual team members is comparatively low. How can the effects on team productivity and climate be explained? Is the increase of team success possibly also connected with growth, learning and maturing of individual team members? Which individual attitudes and behaviours are crucial for team success and what is ultimately standing behind the idea of "working smarter, not harder" (Pritchard et al., 2012, S. 73)? The concept of job crafting (Demerouti & Bakker, 2014; Wrzesniewski & Dutton, 2001) can provide a starting point to answer this question.

Job crafting and work engagement

In the European research context, job crafting is embedded in the JD-R model (Demerouti et al., 2001; Petrou, Demerouti, Peeters, Schaufeli, & Hetland, 2012), whereby job characteristics are divided into job demands and job resources. Job demands relate to the aspects of the activity that require effort and are therefore associated with psychological and physical costs. Workplace resources, on the contrary, are the aspects of an activity that support the employee in meeting demands, achieving goals and developing personally (Demerouti et al., 2001). In this paper, job crafting is described as proactive adjustments that employees make, in order to achieve a balance between demands and resources in their work and to bring their job in line with personal needs (Tims & Bakker, 2010). Job crafting consists of three central (behavioural) strategies: seeking (structural and social) job resources (1), seeking challenging demands (2) and reducing stressful demands (3) (Petrou et al., 2012; Tims, Bakker, & Derks, 2012).

Increasing resources, such as asking for social support or feedback, has a positive impact on work engagement and on other organizational variables such as work performance (Rudolph, Lavigne, Katz, & Zacher, 2017). In addition, resources act as buffer against high job demands (Demerouti et al., 2001). Another important aspect of the JD-R model is that workplace demands do not necessarily lead to stress and negative effects on health (e.g. burnout). If demands are not stimulating or challenging, boredom or dissatisfaction can occur (Kass, Vodanovich, & Callender, 2001). Therefore, the (proactive) search for new, challenging job demands can be a very profitable strategy of individual workplace design. The third component of job crafting, i.e. the reduction of stressful demands, relates to behaviours that aim to avoid emotional, mental or physical stress. Recent research on job crafting shows that the reduction of demands is somewhat more critical as this strategy for example correlates with turnover intentions (Rudolph et al., 2017). Demerouti and Peeters (2018) therefore suggest paying attention to the optimisation of job demands (e.g. efficient working methods, time management).

In the present study, we assume that employees who influence their way of working, the work content and the resources in their environment experience the feeling of vigour, dedication and absorption, i.e. work engagement, more often (Demerouti, 2014; Rudolph, Lavigne, Katz, & Zacher, 2017). Vigour is characterised by a high level of commitment in one's own activity and a high degree of resilience. Employees who experience a high degree of dedication in their work feel involved, enthusiastic and inspired. If employees are able to concentrate, being engrossed in their work and experience difficulties to detach from work, they experience absorption (Bakker & Bal, 2010).

Not all job crafting components are equally correlated to work engagement. While Tims and colleagues (2012) were able to show that seeking challenges is positively associated with work engagement, Petrou and others (2012) proved that reducing demands correlated negatively with work engagement. However, as the JD-R model implies, promoting work engagement is always about the balance between work demands and work resources. Bakker, Hakanen, Demerouti, and Xanthopoulou (2007) were able to show that job resources had a positive effect on work engagement, especially when demands were high. Job resources, such as feedback, play an important role in intrinsic motivation as they stimulate learning and development. Consequently, basic human needs (Deci & Ryan, 2000) are met and competencies could be expanded. Furthermore, this motivational process, triggered by job resources, can increase work engagement

because individuals experience that their work allows them to use their own skills and develop on a personal level (Bakker & Bal, 2010; Tims et al., 2012).

Proactive behaviour ultimately changes the characteristics of an activity. The goal is to reach improvements by solving problems or optimising processes. Through this way, employees experience a feeling of participation, motivation and increased work engagement (Petrou et al., 2012). As part of the ProMES implementation (system development, feedback phase), team members are encouraged to question working methods, to develop new solutions to problems and to think collectively about improvements in their own work environment. During the system development, however, little of these innovative actions take place. The teams just meet once a week to develop the system (objectives and indicators). Only in the feedback phase, concrete measures are derived in order to specifically improve performance and quality aspects of the work. Despite this background, the following hypotheses are formulated:

Hypothesis 1: The members in the ProMES groups demonstrate a higher level of job crafting during the ProMES implementation, with job crafting increasing more during the feedback phase than during the system development phase.

The implementation of ProMES offers a number of job resources, such as regular feedback, social support, role clarification and participation. In the same breath, however, challenging job demands are added by defining tasks and goals together as a team and encouraging employees to collect and document data in addition to normal day-to-day activities. It is therefore assumed that work engagement for all participants increases over the course of the feedback phase.

Hypothesis 2: Work engagement increases across all participants during the feedback phase.

If the employees not only develop new solutions and suggestions for problems or rethink their previous approach to their work, but also put these new ideas into practice, this should result in increased productivity of the departments and the hotel as a whole. Since the implementation of new approaches and ideas only begins in the feedback phase, it is assumed that the presumed positive productivity effect is particularly evident in this phase.

Hypothesis 3: The introduction of the ProMES feedback has a positive effect on the productivity of the ProMES groups compared to the basic measurement.

Method

Participants and procedure

The present study was conducted during a ProMES implementation process in four departments of a medium-sized hotel (Ulrich, Roth, & Moser, 2017). A total of 30 employees filled out three different types of questionnaires: A general questionnaire at the beginning of the study, daily questionnaires during the system development phase (28 employees) and weekly questionnaires in the feedback phase (26 employees). The participants used a diary booklet to fill in the daily questionnaires. They were instructed to fill in the daily questionnaires at the end of each workday and insert the questionnaires in a closed box, emptied by the facilitators at the end of each week. In order to ensure the participants` anonymity, the employees were asked to fill in a customized code instead of any personal data. The weekly questionnaires during the feedback phase were filled out after each team conducted their feedback meeting and referred to the previous week.

The participants of the study were predominantly female (83%) and on average 31.79 years (*SD* = 9.59 years) old. The average tenure in the hotel was 5.52 years (*SD* = 4.51 years), while the participants were employed for 7.85 years (*SD* = 5.2 years) on average. Thirteen participants (43%) indicated German as their native language, whereas 17 subjects (57 %) reported another language for their native language. With regard to the level of education, 17% of the participants indicated a low level of education, 33% of the subjects medium and 26% of the study participants a higher level of education (17% others). Furthermore, the 30 participants worked in different departments: Five participants were part of the front desk staff, ten participants worked in housekeeping, six employees worked in the kitchen and service team, seven employees were part of the meetings and events staff and two participants were part of the hotel management.

ProMES implementation

The implementation of the ProMES method can be divided into three steps: The system development phase, baseline phase and feedback phase (Pritchard et al., 2012). The ProMES project began in October 2014 (one month before the start of the system development phase) with a kick-off event in which the project plan was presented and the mission of the ProMES project was defined. This mission statement can be viewed as a long-term goal, serving as the foundation for developing the ProMES objectives.

Based on this mission, each one of the hotel teams developed their own team vision for the next five years (see Figure 1). The team vision was presented with a poster and a vision statement.

Figure 1
ProMES implementation process

In the next step, a ProMES design team was formed for each department, which consisted of two to three employees per department due to shift work in the hotel. The system development phase began in November 2014 with weekly two-hour meetings in each team except for the management team. To ensure that each team member could participate in the ProMES development process, the participants rotated between the meetings. In general, the meetings were moderated by two external ProMES facilitators. First of all, the teams defined their team objectives, which are based on the essential tasks of the team and are formulated as a goal (e.g. objective of the front desk: "Increasing guest and organizational satisfaction"). In the next system development step, indicators were deviated for each objective. The development of indicators ensures to assess retrospectively that objectives were met (Pritchard et al., 2008). For example, the front desk team developed the indicator “Percentage of workdays with a positive evaluation” for the objective mentioned above. This indicator was operationalised using a rating box with four compartments (see Figure 2). The four compartments symbolised the combination of the perceived stress level and the satisfaction with work results

in high and low values. The participants could rate their workday by dropping a coin into one of the four possible box compartments. The participants also set minimum values, zero points and maximum values for each indicator in order to evaluate the collected data. Moreover, contingencies were developed for each indicator to ensure the comparability of the indicator measurements. Finally, the hotel management approved the indicators before they were tested in the hotel environment. Starting in mid-February 2015, the hotel teams tested their indicators in the baseline phase for six weeks without feedback meetings. The weekly feedback meetings started in mid-April 2015. To make sure that the collected data can be analysed properly, a report for each feedback meeting was created. On the basis of this data and the previously defined contingencies of each indicator, appropriate measures were deviated. Finally, the moderation and implementation of the feedback meetings was handed over to the hotel staff in May 2015.

Figure 2
Rating box for the indicator “Percentage of workdays with a positive evaluation”

Measures

Daily job crafting

Daily job crafting was measured with ten items from Petrou and colleagues, (2012) day-level job crafting questionnaire during the system development phase. Day-level seeking resources (α = .73) consisted of four items, day-level seeking demands (α = .84) and day-level reducing demands (α= .84) included three items each. A sample item was „*Today, I have asked colleagues for advice*“ (seeking resources). Participants answered on a 5-point rating scale ranged from 1 („*does not apply to me*“) to 5 („*totally applies to me*“). In addition, the questionnaire was translated into German by eight independent persons. Since some participants indicated a language other than German for their native language, an English version of the questionnaire was also stored in the diary.

Weekly job crafting

Weekly job crafting was also assessed with the ten items from Petrou and colleagues, (2012) day-level job crafting questionnaire during the feedback phase. However, the wording of the items was adapted to the weekly evaluation. A sample item was „*Last week, I have asked for more tasks if I finish my work*“. Participants answered on a 5-point rating scale ranged from 1 („*(almost) never*“) to 5 („*often*“).

Work engagement

Work engagement was assessed with the German version of the *Utrecht Work Engagement Scale* (UWES; Schaufeli, Bakker, & Salanova, 2006) on a weekly basis during the feedback phase. The UWES consists of 17 items representing the three subscales vigour, dedication and absorption. Participants answered on a 7-point rating scale ranged from 1 („*no, does not apply to me*“) to 7 („*yes, totally applies to me*“). The wording of the items had also been adapted to the weekly assessment. Hence, a sample item was “*Last week, at work, I felt bursting with energy*”.

Control variables

In order to rule out a possible confounding influence on the examined relationships, we controlled for age and gender. The control variables were collected in the general questionnaire at the beginning of the study.

Data analysis

The data has a hierarchical structure with two levels, whereas repeating measurements (Level-1; 905 measurement occasions) are nested within participants (Level-2; 30 participants; Hox, 2002). In order to analyse the hypotheses, we conducted multilevel analyses using R (R Development Core Team, 2003). Level-1 variables were centred around the respective group mean. Level-2 variables were centred around the grand mean.

Results

Descriptive statistics

Table 1 shows the mean values, standard deviations and intercorrelations of the examined variables. Contrary to previous studies (Bakker & Demerouti, 2007; Hakanen, Schaufeli & Ahola, 2008; Petrou et al., 2012), no significant positive correlation between job crafting and work engagement could be confirmed (r = -.01, n. s.).

Table 1
Mean values, standard deviations and intercorrelations

	Variable	*M*	*SD*	1	2	3
1	Age	32.8	9.16			
2	Gender[a]	0.88	0.33	.25**		
3	Job Crafting	2.55	0.60	-.53**	-.40**	
4	Work Engagement	5.34	0.50	.20**	.00	-.01

Note. N = 905 measurement occasions, N = 30 participants; [a] 0 = male, 1 = female; * indicates p < .05, ** indicates p < .01.

Hypothesis testing

Job crafting and work engagement

Hypothesis 1 assumed that participants should report a higher level of job crafting during the ProMES implementation, with job crafting increasing more during the feedback phase than during the system development phase. The results of the multi-level analysis reveal an insignificant negative relationship between the system development phase and job crafting (b = -0.08, *n.s.*). Concerning the feedback phase,

the analysis confirms a significant positive relationship between the feedback phase and job crafting (b = 0.81, p <.01; see Table 3). As a result, job crafting tends to decrease slightly during the system development phase and increase during the feedback phase, which confirms hypothesis 1.

Table 2
Multi-level analysis predicting job crafting separated by ProMES phases

Model variables	1			2		
	b	SE	t	b	SE	t
Intercept	3.67	0.44	8.42**	3.86	0.41	9.33**
Age	-0.03	0.01	-2.08*	-0.03	0.01	-2.24*
Gender[a]	-0.46	0.34	-1.37	-0.50	0.32	-1.57
Day[b]	0.00	0.00	3.54**	-0.00	0.00	-1.66
System development				-0.08	0.06	1.31
Feedback phase				0.81	0.13	6.15**
-2 x log			1273			1208
Δ - 2 x log						65

Note. N = 737 measurement occasions; N = 24 participants; [a] 0 = male, 1 = female; [b] Days in the ProMES process; * indicates p < .05, ** indicates p < .01.

Hypothesis 2 assumed a positive relationship between the ProMES implementation and work engagement during the feedback phase. However, as can be seen in Table 4, contrary to expectations, no significant positive correlation can be confirmed (b = 0.00, *n.s.*). This means that the volunteers' work engagement does not increase during the feedback phase. Hypothesis 2 must therefore be rejected.

Table 3
Multi-level analysis predicting work engagement during feedback phase

Model variables	1			2		
	b	SE	t	b	SE	t
Intercept	3.73	0.66	5.68**	3.49	0.74	4.73**
Age	0.05	0.02	2.51*	0.05	0.02	2.54*
Gender[a]	-0.12	0.50	-0.24	-0.17	0.51	-0.33
Day[b]				0.00	0.02	0.72
-2 x log			290			289
Δ - 2 x log						1

Note. N = 142 measurement occasions; N = 24 participants; [a] 0 = male, 1 = female; [b] Days in the ProMES process; * indicates p < .05, ** indicates p < .01.

Productivity effects

The third hypothesis of the present study assumed that the introduction of feedback during the feedback phase has a positive effect on the productivity of the hotel compared to the baseline measurement. To answer the hypothesis, the effect sizes for the ProMES system were calculated. An effect size (Cohen's d) of 0.84 was achieved across all teams, which can be interpreted as a large effect (Cohen, 1988). With regard to the individual departments, positive effects were achieved. The meeting and event team achieved an effect size of 0.33, the front desk team an effect size of 0.77, housekeeping an effect size of 1.41, and the kitchen and service departments an effect size of 0.85. Overall, the results revealed that the introduction of the ProMES method can be successful in the hotel industry and at the same time leads to productivity gains. Hypothesis 3 can thus be confirmed.

Discussion

The present diary study examined to what extent participants demonstrate proactive behaviour at work, so-called job crafting, in the course of a ProMES team intervention and in turn experience increased work engagement (i.e. vigour, dedication and absorption). In addition, it was investigated if ProMES can be used successfully in the hotel and restaurant industry and whether it is possible to establish a ProMES system over a longer period of time. Finally, it was examined whether ProMES leads to substantial productivity gains in the departments involved.

Job crafting

Over the course of the implementation of the ProMES method, a significant increase in job crafting behaviour across all participants was observed. However, this effect could only be confirmed during the feedback phase, but not during the system development phase. From a practical point of view, this makes perfect sense, as the feedback phase in Lewin's theory is a "moving" phase (Lewin, 1948). In the moving phase new things are tried, old and inefficient habits are removed and space for innovation and change is made. Therefore, the information provided at the group level in the feedback process was apparently used by the individual team members to adapt and change their own work behaviour. However, during the system development phase, clarification processes regarding roles, tasks and goals (Pritchard et al., 1989) take place, while usual activities are still carried out according to traditional procedures.

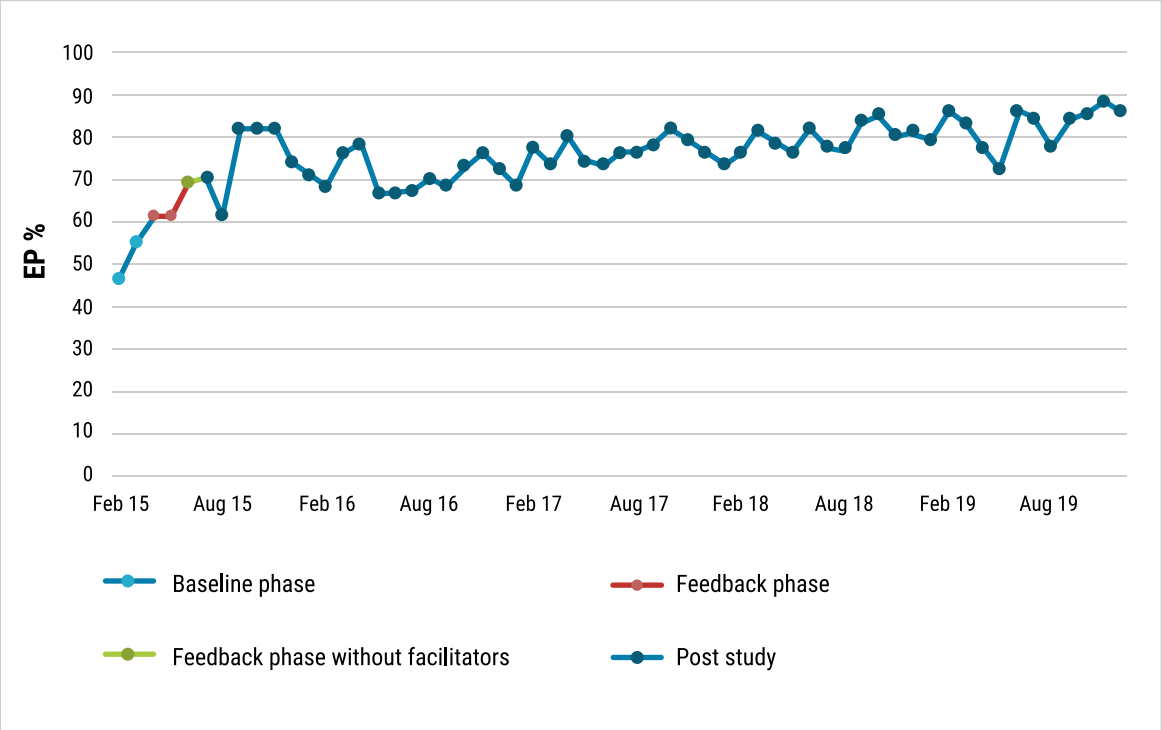
Work engagement

With regard to work engagement the results are somewhat surprising at a first glance, since various studies have shown that job crafting is associated with increased work engagement (Petrou et al., 2012; Schaufeli & Bakker, 2004). Why work engagement did not increase over the course of the ProMES implementation could be due to the fact that certain variables, e.g. the individual work performance, had not been considered as control variables. A study by Bakker and Bal (2010) verified a positive correlation between individual work performance and work engagement. In the study from Bakker and Bal (2010), performance was measured using a four-item questionnaire. In the present study, the performance data was measured on a group level, but not at the individual level. At least it can be said that the teams with the greatest effect sizes in the ProMES data, namely the housekeeping team (d = 1.41) and the kitchen and service team (d = .85), also achieved the highest values in work engagement. Another possible explanation for the non-significant result could be a ceiling effect, meaning that work engagement was already at a high level before the ProMES process began. Thus, the implementation of ProMES would possibly result only in a slight or no further increase in work engagement.

Productivity

The results showed that the ProMES method could successfully be implemented in all departments involved. Furthermore, the sustainable continuation of the feedback process should be mentioned here. In the meantime, continuous feedback data from the departments involved (and other additional established groups in the hotel) are available from February 2015 to December 2019 (see Figure 3). During the study, all teams showed medium to very strong effects on the productivity indicators. Overall, the value was at an effect size d of 0.84, which can be interpreted as a strong intervention effect to promote productivity in organizations (Hunter & Schmidt, 1983). However, the results are somewhat below the average effect size of (d = 1.44) published in a ProMES meta-analysis (Pritchard et al., 2008) across 88 ProMES interventions.

Figure 3
Productivity trend (mean values) across all teams from February 2015 until August 2019



Note. EP % refers to the proportion of the achieved effectiveness points of the maximum achievable effectiveness points across all departments.

Limitations

The present study has three limitations. First, the sample of the study consisted exclusively of similar employees of a privately-run hotel. Most of the participants were female and had comparable qualifications. This high degree of homogeneity in the sample limits the generalisability of the study results. Further research efforts are necessary in order to be able to apply the results of the study to other contexts and professional groups. Second, the hypothesis-relevant variables were collected by the participants themselves, using self-reports, which increases the probability of measurement errors (common method bias; Podsakoff, MacKenzie, Lee, & Podsakoff, 2003). However, research in the area of diary studies has shown that the cognitive processing activity of test subjects is very low when filling in the daily questionnaires (Bakker & Bal, 2010). Participants therefore rather report their current feelings than spending additional time for a precise consideration of their response (Robinson & Clore, 2002). This should mitigate the occurrence of common method bias in the response behaviour. Third, the reference point of the job crafting scale changed

across the study, making it more likely that the measurement would be distorted. While the assessment of job crafting was first executed on a daily basis in the system development phase, the feedback phase was characterised by a weekly assessment. At the same time, the English version of the job crafting questionnaire was translated into German by a small number of people, which could have further increased the occurrence of measurement errors.

Practical implications and outlook

The findings of the current study provide valuable insights for the further development of the ProMES method. If job crafting emerges more during the feedback phase, individual indicators could be tested in a more agile process during the system development. Therefore, it can be assumed that job crafting behaviours that are conducive to individual growth and personal learning are stimulated earlier in the process. However, changes to the process should always be treated with caution, as Pritchard and colleagues (2008) were able to show in their meta-analysis that the ProMES effect size decreased when the method was changed or adapted by ProMES users. At least with regard to the observed increase in job crafting behaviour, it can be concluded that the ProMES method stimulates personal growth, learning and maturing in the sense of "thriving" (Niessen et al., 2012). The employees involved increased their activities in terms of seeking resources (e.g. getting support from colleagues), reducing demands (e.g. preventing posture-damaging postures when lifting) and seeking challenges (e.g. voluntary adjustment of the bar menu in summer). In addition, the employees “crafted” cognitively (Wrzesniewski & Dutton, 2001). For example, the self-perception of the housekeeping team has changed from "We are only the cleaning service" to a team vision saying "We are responsible for the well-being of our guests and our colleagues".

With regard to the non-existent positive effect on work engagement, future research should consider individual work performance on the one hand, and potentially mediating variables, such as participatory safety in teams, on the other hand (West, 2004). It is obvious that the effect of a team-based intervention on the individual work experience is also mediated by group dynamics. Salanova and colleagues (2005) were able to proof that work engagement predicted the service climate in a hotel. In the ProMES process, this effect could be reversed: If the team climate is stimulated according to existing research during system development (Roth & Moser, 2009), this could have a positive effect on future work engagement. Another possible explanation

for the non-observable work engagement effect could be the short observation period. Work engagement emerges as a result of successful change processes (Petrou et al., 2012). If employees see an organizational change as a positive challenge and they manage to master it successfully (e.g. with job crafting), then this should also affect the work engagement of the people involved in the long run. To be precise, the introduction of ProMES is a change process in which the responsibility for measuring, assessing and promoting team performance is transferred to the team members. The change goes far beyond the first feedback phases and continues until this day. In future studies, it is recommended to continuously collect data on aspects such as work engagement over a longer period of time. This can also provide important information for the decision making in companies (e.g. continuation or termination of the procedure). Basically, it can be concluded that an introduction of ProMES in the hotel and restaurant industry is definitely recommended. The participants quickly find suitable feedback criteria and therefore collect data, which is already available in the daily routine. The frequent feedback sessions ensure regular communication within and between the teams, but also with the hotel management. Consequently, there is a high level of transparency and a good basis for joint decision making. Due to the unconfirmed hypothesis on work engagement, it remains largely unanswered whether ProMES also leads to health-promoting outcomes in addition to performance-enhancing consequences. Further research is needed to clarify this question. From a practical point of view, however, ProMES has already had an impact on health aspects for the hotel employees involved. Thus, in addition to the existing ProMES systems, a system called “Health in the hotel” was implemented, in which a cross-functional team called "Lab Team Health" continuously records, reports and improves health aspects of the hotel staff. Employee-initiated measures, such as the "Wall of Positive Energy", a collective mindfulness board, help employees collect positive experiences in their everyday hotel life (e.g. nice conversation with guests, get support from colleagues) and share them with colleagues and guests on a magnetic wall, accessible to the public in the hotel as well. Overall, the introduction of ProMES in combination with a positive and mutually respectful corporate culture has created an innovative environment. Considering the challenges in the hotel market in Germany described in the beginning, employee turnover is far below the industry average today. Nevertheless, the challenges for management and personnel remain high: The trend towards city trips continues, as does the competition for qualified and motivated personnel. Reason enough to repeatedly take a critical look at the question of how working together and individual and organizational growth can further be promoted.

References

Agrell, A., & Malm, K. (2002). ProMES in a Swedish traffic police department and its effects on team climate. In R. D. Pritchard, H. Holling, F. Lammers, & B. D. Clark (Eds.), *Improving organizational performance with the Productivity Measurement and Enhancement System: An international collaboration* (pp. 53-68). Huntington, New York: Nova Science.

Arapovic-Johansson, B., Wåhlin, C., Hagberg, J., Kwak, L., Björklund, C., & Jensen, I. (2018). Participatory work place intervention for stress prevention in primary health care. A randomized controlled trial. *European Journal of Work and Organizational Psychology*, *27*, 219-234. https://doi.org/10.1080/1359432X.2018.1431883

Bakker, A. B. (2011). An evidence-based model of work engagement. *Current Directions in Psychological Science 20*, 265–269. https://doi.org/10.1177/0963721411414534

Bakker, A. B., & Bal, P. (2010). Weekly work engagement and performance: A study among starting teachers. *Journal of Occupational and Organizational Psychology*, *83*, 189-206. https://doi.org/10.1348/096317909X402596

Bakker, A. B. & Demerouti, E. (2007). The Job Demands-Resources Model: State of the art. *Journal of Managerial Psychology*, *22*, 309-328. https://doi.org/10.1108 /02683940710733115

Bakker, A. B., Hakanen, J., Demerouti, E., & Xanthopoulou, D. (2007). Job Resources boost Work Engagement, particularly when Job Demands are high. *Journal of Educational Psychology*, *99*, 274-284. https://doi.org/10.1037/0022-0663.99.2.274

Cohen, J. (1988). *Statistical power analysis for the behavioral sciences* (2nd ed). Hillsdale, N.J: L. Erlbaum Associates.

Deci, E. L., & Ryan, R. M. (2000). The „What“ and „Why“ of goal pursuits: Human Needs and the Self-Determination of Behavior. *Psychological Inquiry*, *11*, 227–268. https:// doi.org/10.1207/S15327965PLI1104_01

Dehoga-Bundesverband. (2019). DEHOGA-Konjunkturumfrage Frühjahr 2019 [DEHOGA economic survey spring 2019]. Retrieved from https://www.dehogabundesverband.de/fileadmin/Startseite/04_Zahlen____Fakten/07_Zahlenspiegel____Branchenberichte/Branchenbericht/DEHOGA-Branchenbericht_Fruehjahr_2019.pdf

Demerouti, E. (2014). Design your own job through job crafting. *European Psychologist*, *19*, 237-247. https://doi.org/10.1027/1016-9040/a000188

Demerouti, E., & Bakker, A. B. (2014). Job crafting. In M. Peeters, J. Jonge, de, & T. Taris (Eds.), *An introduction to contemporary work psychology* (pp. 414-433). Chichester: Wiley-Blackwell.

Demerouti, E., Bakker, A. B., Nachreiner, F., & Schaufeli, W. (2001). The Job Demands–Resources model of burnout. *Journal of Applied Psychology*, *86*, 499-512. https:// doi.org/10.1037/0021-9010.86.3.499

Demerouti, E., & Peeters, M. C. W. (2018). Transmission of reduction-oriented crafting among colleagues: A diary study on the moderating role of working conditions. *Journal of Occupational and Organizational Psychology*, *91*, 209-234. https://doi.org/10.1111/joop.12196

DeNisi, A. S., & Murphy, K. R. (2017). Performance appraisal and performance management: 100 years of progress? *Journal of Applied Psychology*, *102*, 421–433. https://doi.org/10.1037/apl0000085

Fuhrmann, H. (1999). *Produktivitätssteuerung für Arbeitsgruppen. Wirkungen des Managementsystems PPM [Productivity Management in Teams. Outcomes of The Productivity Measurement and Enhancement System (ProMES)]*. Dissertation, Universität Dortmund.

Hakanen, J. J., Schaufeli, W. B., & Ahola, K. (2008). The job demands-resources model: A three-year cross-lagged study of burnout, depression, commitment, and workengagement. *Work & Stress*, *22*, 224-241. https://doi.org/10.1080/02678370802379432

Hox, J. (2002). *Multilevel analysis: Techniques and applications*. Mahwah, NJ: Erlbaum.

Hunter, J. E., & Schmidt, F. L. (1983). Quantifying the effects of psychological interventions on employee job performance and work-force productivity. *American Psychologist*, *38*, 473-478. https://doi.org/10.1037/0003-066X.38.4.473

Karatepe, O., Beirami, E., Bouzari, M., & Safavi, H. P. (2014). Does work engagement mediate the effects of challenge stressors on job outcomes? Evidence from the hotel industry. *International Journal of Hospitality Management*, *36*, 14–22. https://doi.org/10.1016/j.ijhm.2013.08.003

Kass, S., Vodanovich, S., & Callender, A. (2001). State-Trait Boredom: Relationship to Absenteeism, Tenure, and Job Satisfaction. *Journal of Business and Psychology*, *16*, 317-327. https://doi.org/10.1023/A:1011121503118

Kluger, A. N., & DeNisi, A. (1996). The effects of feedback interventions on performance: A historical review, a meta-analysis, and a preliminary feedback intervention theory. *Psychological Bulletin*, *119*, 254-284. https://doi.org/10.1037/0033-2909.119.2.254

Latham, G. P., Erez, M., & Locke, E. A. (1988). Resolving scientific disputes by the joint design of crucial experiments by the antagonists: Application to the Erez-Latham dispute regarding participation in goal setting. *Journal of Applied Psychology Monograph*, *73*, 753–772. https://doi.org/10.1037/0021-9010.73.4.753

Latham, G. P., & Locke, E. A. (2007). New developments in and directions for goal-setting research. *European Psychologist*, *12*, 290–300. doi:10.1027/1016-9040.12.4.290

Lewin, K. (1948). *Resolving social conflicts; selected papers on group dynamics* (G. W. Lewin Ed.). New York: Harper & Row.

Minelli, M. (2008). *Verhaltensorientierte Verkaufsführung: ProMES: Eine wirkungsvolle Form des Sales Coachings* [Behavioral sales management: ProMES: An effective form of sales coaching] (1 ed.). Wiesbaden: Gabler.

Naylor, J. C., Pritchard, R. D., & Ilgen, D. R. (1980). *A theory of behavior in organizations*. New York: Academic Press.

Niessen, C., Sonnentag, S., & Sach, F. (2012). Thriving at work—A diary study. *Journal of Organizational Behavior*, *33*, 468–487. https://doi.org/10.1002/job.763

O'Leary, R. S., & Pulakos, E. D. (2011). Why is Performance Management broken? *Industrial and Organizational Psychology*, *4*, 146-164. doi:10.1111/j.1754-9434.2011.01315.x

Petrou, P., Demerouti, E., Peeters, M. C. W., Schaufeli, W., & Hetland, J. (2012). Crafting a job on a daily basis: Contextual correlates and the link to Work Engagement. *Journal of Organizational Behavior*, *33*, 1120-1141. https://doi.org/10.1002/job.1783

Podsakoff, P. M., MacKenzie, S. B., Lee, J., & Podsakoff, N. P. (2003). Common method biases in behavioral research: A critical review of the literature and recommended remedies. *Journal of Applied Psychology*, *88*, 879-903. https://doi.org/10.1037/0021-9010.88.5.879

Pritchard, R. D. (1990). *Measuring and improving organizational productivity: A practical guide.* New York: Praeger.

Pritchard, R. D., & Ashwood, E. L. (2008). *Managing motivation. A manager's guide to diagnosing and improving motivation.* New York: Routledge, Taylor and Francis Group.

Pritchard, R. D., Harrell, M. M., DiazGranados, D., & Guzman, M. J. (2008). The Productivity Measurement and Enhancement System: A Meta-Analysis. *Journal of Applied Psychology*, *93*, 540-567. Retrieved from http://www.scopus.com/inward /record.url?eid=2-s2.0-43949129125&partnerID=40&md5=74c6ade1caa9a8c72b8994bd26cda866

Pritchard, R. D., Jones, S. D., Roth, P. L., Stuebing, K. K., & Ekeberg, S. E. (1988). The effects of feedback, goal setting, and incentives on organizational productivity. *Journal of Applied Psychology Monograph Series*, *73*, 337-358.

Pritchard, R. D., Jones, S. D., Roth, P. L., Stuebing, K. K., & Ekeberg, S. E. (1989). The evaluation of an integrated approach to measuring organizational productivity. *Personnel Psychology*, *42*, 69–115. https://doi.org/10.1111/j.1744-6570.1989.tb01552.x

Pritchard, R. D., Kleinbeck, U., & Schmidt, K. H. (1993). *Das Management-System PPM: Durch Mitarbeiterbeteiligung zu höherer Produktivität [The PPM Management System: Employee participation for improved productivity]*. München: Beck.

Pritchard, R. D., Weaver, S. J., & Ashwood, E. L. (2012). *Evidence-based productivity improvement - A practical guide to the productivity measurement and enhancement system (ProMES)*. New York: Routledge.

Przygodda, M., Beckmann, J., Kleinbeck, U., & Schmidt, K. H. (1995). Produktivitätsmessung und -management. Eine Überprüfung des Managementsystems Partizipatives Produktivitätsmanagement (PPM) [Measuring and managing productivity: An examination of the management system Productivity Measurement and Enhancement System (ProMES)]. *Zeitschrift für Arbeits-und Organisationspsychologie*, *37*, 157-167.

R Development Core Team. (2003). *The R Reference Manual: Base Package* (Vol. 1). United Kingdom: Network Theory.

Robinson, M. D., & Clore, G. L. (2002). Belief and feeling: Evidence for an accessibility model of emotional self-report. *Psychological Bulletin*, *128*, 934-960. https://doi.org/10.1037/0033-2909.128.6.934

Roth, C., & Moser, K. (2005). Partizipatives Produktivitätsmanagement bei komplexen Dienstleistungen [The Productivity Measurement and Enhancement System (ProMES) with complex service tasks]. Zeitschrift für Personalpsychologie, 2, 66-74. https://doi.org/10.1026/1617-6391.4.2.66

Roth, C., & Moser, K. (2009). Leistungsmanagement von Gruppen bei wissensintensiven Dienstleistungen [Performance Management with teams in knowledge intensive services]. *Zeitschrift für Personalpsychologie*, *1*, 24-34. https://doi.org/10.1026/1617-6391.8.1.24

Roth, C., Young, B. L., Koenig, N., Schmerling, D., & Pritchard, R. D. (2017). Organizational insights from performance management intervention applied to sports. In D. J. Svyantek (Ed.), *Sports and Understanding Organizations* (pp. 250–282). Charlotte: Age Publishing Inc.

Rousseau, D. M. (2012). Organizational behavior's contributions to evidence-based management. In D. M. Rousseau (Ed.), *The oxford handbook of evidence-based management*. New York: Oxford University Press.

Rudolph, C., Lavigne, K., Katz, I., & Zacher, H. (2017). Job Crafting: A Meta-Analysis of Relationships with Individual Differences, Job Characteristics, and Work Outcomes. *Journal of Vocational Behavior*, *102*, 112-138. https://doi.org/10.1016/j.jvb.2017.05.008

Salanova, M., Agut, S., & Peiro, J. (2005). Linking Organizational Resources and Work Engagement to Employee Performance and Customer Loyalty: The Mediation of Service Climate. *Journal of Applied Psychology*, *90*, 1217-1227. https:// doi.org/10.1037/0021-9010.90.6.1217

Scaduto, A., Hunt, B., & Schmerling, D. (2015). A Performance Management solution: Productivity Measurement and Enhancement System (ProMES). *Industrial and Organizational Psychology*, *8*, 93–99. https://doi.org/10.1017/iop.2015.18

Schaufeli, W. B., & Bakker, A. B. (2004). Job demands, job resources, and their relationship with burnout and engagement: a multi-sample study. *Journal of Organizational Behavior*, *25*, 293-315. https://doi.org/10.1002/job.248

Schaufeli, W. B., Bakker, A. B., & Salanova, M. (2006). The measurement of work engagement with a short questionnaire: A cross-national study. *Educational and Psychological Measurement*, *66*, 701-716. https://doi.org/10.1177001316440528247 1

Schmelzer. (2018). *Einfluss von ProMES auf den Unternehmenserfolg - Integration eines psychologischen Verfahrens zu Unternehmenssteuerung [Effect of ProMES on corporate success - integration of a psychological method into corporate management]*. Dissertation, Friedrich-Alexander-Universität Erlangen-Nürnberg.

Statista. (2019). Städtetourismus in Deutschland [City tourism in Germany]. Retrieved from https://de.statista.com/statistik/studie/id/6726/dokument/staedtetourismus-statista-dossier/

Tims, M., & Bakker, A. B. (2010). Job crafting: towards a new model of individual job redesign. *SA Journal of Industrial Psychology*, *36*, 1-9. Retrieved from http://www.scielo.org.za/scielo.php?script=sci_arttext&pid=S2071-07632010000200003&nrm=iso

Tims, M., Bakker, A. B., & Derks, D. (2012). Development and validation of the job crafting scale. *Journal of Vocational Behavior*, *80*, 173-186. https://doi.org/10.1016/j.jvb.2011.05.009

Ulrich, S., Roth, C., & Moser, K. (2017). A team intervention to facilitate job crafting: The Productivity Measurement and Enhancement System and its effects on individual working behaviors. Paper presented at the EAWOP 2017 - Enabling Change through Work and Organizational Psychology, Dublin.

West, M. A. (2004). *Effective teamwork: practical lessons from organizational research*. Oxford: Blackwell.

Wrzesniewski, A. (2013). Job Crafting and Cultivating Positive Meaning and Identity in Work In A. B. Bakker (Ed.), *Advances in Positive Organizational Psychology* (Vol. 1, pp. 281-302). Emerald Group Publishing Limited. https://doi.org/10.1108/S2046-410X(2013)0000001015

Wrzesniewski, A., & Dutton, J. E. (2001). Crafting a Job: Revisioning Employees as Active Crafters of Their Work. *The Academy of Management Review*, *26*, 179-201. https://doi.org/10.2307/259118.

.INPRACTICE
THE EAWOP PRACTITIONERS E-JOURNAL

Publish with us

Our unique aim is to publish a wide range of material from practitioners and scientists focusing on the application of WOP in Europe and further afield. This may be empirical work, theoretical contributions, case study descriptions, evaluations of interventions or commentary on current "hot topics". We are also interested to know what it is like to practice or teach WOP in your country and how psychologists maintain their continuous professional development. We welcome reports about activities and qualifications from psychological associations that will inform other applied psychologists.

InPractice editors are happy to discuss
ideas / plans for proposed articles or case studies

For further information, contact the editors at
InPractice@eawop.org

Follow us on LinkedIn:
InPractice: The EAWOP Practitioners E-Journal