

IWPQ[©]

Individual Work Performance Questionnaire

Instruction Manual

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1. Theoretical background

Individual work performance (IWP) is an issue that not only has grasped companies all over the world, but also has fueled a great deal of research in disciplines, such as occupational health, work and organizational psychology, and management and economics. Despite the importance and popularity of IWP, there was little consensus on how to define and conceptualize IWP. In accordance, a multitude of instruments existed to measure IWP. However, none of the existing instruments appeared to measure all the relevant aspects of IWP, and appeared to be generically applicable (Koopmans et al., 2013b). The lack of consensus on how to define, conceptualize, and measure IWP is undesirable, because valid measurement is a prerequisite for accurately establishing predictors and effects of IWP, and the effectiveness of interventions, procedures and strategies to maintain, improve, or optimize IWP (Koopmans, 2014).

In this manual, a questionnaire is presented that measures IWP in a comprehensive, generic, and short way: the Individual Work Performance Questionnaire (IWPQ). The first step towards the development of the IWPQ was establishing a clear definition and conceptualization of IWP. Therefore, a multi-disciplinary, systematic review of the literature on conceptual frameworks of IWP was performed by Koopmans et al. (2011).

The definition of IWP as *“behaviors or actions that are relevant to the goals of the organization”* (Campbell, 1990) was adopted. Thus, work performance focuses on behaviors or action of the employee, rather than on results of these behaviors. In addition, behaviors should be under the control of the individual, thus excluding behaviors that are constrained by the environment (Rotundo & Sackett, 2002).

The IWPQ is based on a conceptual framework consisting of three dimensions (see Figure 1). This conceptual framework was based on the systematic review (Koopmans et al., 2011) and on field-testing of the IWPQ (Koopmans et al., 2013b). At the highest level, is the latent, general factor of IWP. At the second level, there are three dimensions of IWP: task performance, contextual performance, and counterproductive work behavior.

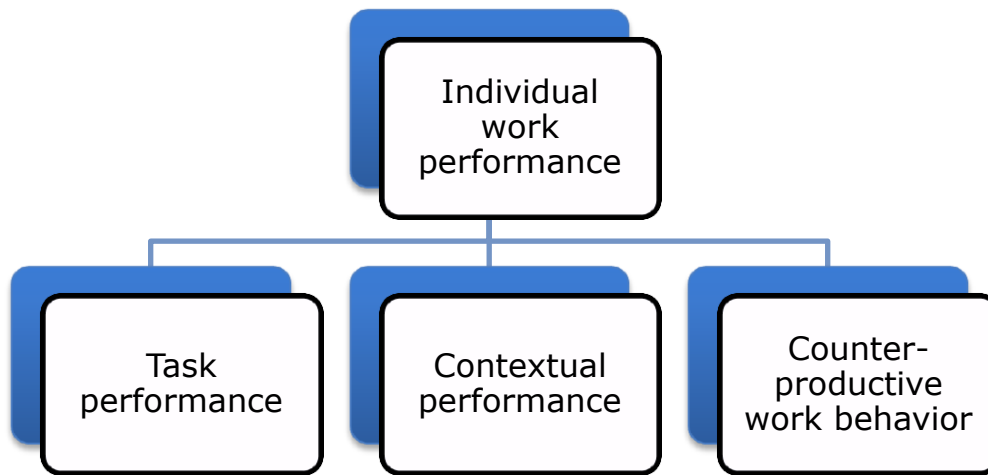


Figure 1. Conceptual framework of the Individual Work Performance Questionnaire.

Task performance can be defined as “the proficiency with which individuals perform the core substantive or technical tasks central to his or her job” (Campbell, 1990). Behaviors used to describe task performance often include work quantity and quality, job skills, and job knowledge (Campbell, 1990; Rotundo & Sackett, 2002).

Contextual performance can be defined as “behaviors that support the organizational, social and psychological environment in which the technical core must function” (Borman & Motowidlo, 1993). Behaviors used to describe contextual performance include for example demonstrating effort, facilitating peer and team performance, cooperating, and communicating (Campbell, 1990; Rotundo & Sackett, 2002).

Counterproductive work behavior (CWB) can be defined as “behavior that harms the well-being of the organization” (Rotundo & Sackett, 2002). Behaviors used to describe counterproductive work behavior, often include absenteeism, off-task behavior, theft, and substance abuse (Koopmans et al., 2011).

In the review by Koopmans et al. (Koopmans et al., 2011), the new and upcoming dimension of adaptive performance was also identified (e.g. Griffin, Neal, & Parker, 2007; Pulakos, Arad, Donovan, & Plamondon, 2000; Sinclair & Tucker, 2006). This dimension focuses on the growing interdependency and uncertainty of work systems and the corresponding change in the nature of IWP, and can be defined as “the extent to which an individual adapts to

changes in the work role or environment” (Griffin et al., 2007). Although this dimension was first included in the conceptual framework for the IW PQ, this dimension was later merged with the contextual performance dimension (see section 2.2).

2. Development of the IWPQ

2.1 Pilot-test

As existing knowledge was insufficient to operationalize the dimensions in the conceptual framework, a study was performed to identify possible indicators of IWP, via the scientific literature, existing questionnaires, and expert interviews. Subsequently, the most relevant and generic indicators per dimension were selected by experts from different professional backgrounds (Koopmans et al., 2013a). The selected indicators were used to construct a first version of the Individual Work Performance Questionnaire (IWPQ). One to three questionnaire items were formulated for each selected indicator, resulting in a questionnaire with 47 items.

The first version of the IWPQ was pilot-tested amongst 54 researchers (Koopmans et al., 2013b). In addition, six think-aloud protocols were held. Based on the findings, clarity and readability of the items were improved. One main revision was reducing the answer categories from seven to five categories, as participants indicated that the differences between some answer categories were unclear. Another main revision was extending the recall period from 4 weeks to 3 months, to assure that most situations had likely taken place. Face validity of the IWPQ was good. As a final check, the VU University Language Center screened the full questionnaire for readability and correct use of language.

2.2 Field-test

After pilot-testing, the 47-item IWPQ 0.1 was field-tested in a sample of 1,181 Dutch workers from three occupational sectors: *blue collar* (manual workers, e.g.: carpenter, mechanic, truck driver), *pink collar* (service workers, e.g.: hairdresser, nurse, teacher), and *white collar* workers (office workers, e.g.: manager, architect, scientist).

Based on the results of the field-test, the original conceptual framework with four dimensions was reduced to three dimensions. The contextual performance and adaptive performance dimension were merged into one dimension, as factor analysis showed that the items loaded on the same factor. This three-dimensional model was generalizable to all occupational sectors (Koopmans et al., 2013b).

Next, Rasch analysis (Rasch, 1960) was performed to examine scale and item functioning in more detail. For a thorough description of Rasch analysis, we refer to Tennant and Conaghan (2007). Generic, short scales were constructed by including only those items fitted the Rasch model and that were relevant to all occupational sectors. These scales represented the IWPQ version 0.2. In the task performance scale, planning and organizing work, result-oriented working, prioritizing, and working efficiently, were assessed. In the contextual performance scale, taking initiative, taking on challenging work tasks, keeping job knowledge and skills up-to-date, and coming up with creative solutions to novel, difficult problems, were assessed. In the CWB scale, displaying excessive negativity, and doing things that harm your organization, were assessed.

Participants rated the understandability of the items as good to very good ($M=3.2$, $SD=0.6$ on a 0-4 scale). They rated the applicability of the items to their occupation as reasonable to good ($M=2.6$, $SD=0.9$ on a 0-4 scale). There were no relevant differences between age groups, genders, or occupational sectors.

2.3 Improvement of the IWPQ

Rasch analyses of the field-test showed that some ceiling-effects could be identified for the task and contextual performance scale, and floor-effects could be identified for the CWB scale. This indicated that it is hard to distinguish amongst high and very high task and contextual performers, and low and very low counterproductive workers. Thus, the discriminative ability of the scales was sub-optimal. This could be improved by including extra, more difficult items for task and contextual performance, and extra, less difficult items for CWB. In Koopmans et al. (2014b), the improved IWPQ 0.3 is described.

The IWPQ 0.3 was tested in a new sample of 1,424 Dutch workers from different occupational sectors (blue, pink, and white collar). Extra items that fitted the Rasch model, and that improved the discriminative ability of the scales, were retained. The discriminative ability of the task performance and contextual performance scale was improved by the extra items, however, the CWB scale was not. Although the CWB items were evenly spread over the ability scale, most persons were located at the lower end of the scale. CWB remains a difficult phenomenon to measure for two reasons. First, there could be an actual low occurrence of these behaviors. Second, there are obvious problems with social desirability: workers might be reluctant to admit that they engage in CWBs.

After this round of improvement, the final IWPQ 1.0 was established, consisting of 3 dimensions and 18 items in total. The task performance scale consisted of 5 items, the contextual performance scale of 8 items, and the CWB scale of 5 items.

3. Reliability and validity of the IWPQ

3.1 Internal consistency

The internal consistency of the IWPQ is good (Koopmans et al., 2014a). During the development of the IWPQ, the Person Separation Index (PSI) produced by the Rasch analyses was used as the primary reliability statistic. This index is comparable to Cronbach's alpha. In Table 1, both the PSI and the Cronbach's alpha are reported per scale (n = 1,424). Noticeably, there is a discrepancy between the PSI and Cronbach's alpha values for the CWB scale. This discrepancy is caused by the exclusion of persons with extreme values (e.g. persons with a score of 0 on the scale) when calculating the PSI, and the inclusion of these persons when calculating the Cronbach's alpha.

Table 1. Internal consistency of the IWPQ 1.0 (n = 1,424).

	PSI	Cronbach's alpha
Task performance (5 items)	0.81	0.78
Contextual performance (8 items)	0.85	0.85
CWB (5 items)	0.74	0.79

3.2 Construct validity

The construct validity of the IWPQ is acceptable (Koopmans et al., 2014). So far, two types of construct validity have been assessed, namely convergent and discriminative validity.

Convergent validity of the IWPQ and HPQ

First, the convergent validity of the IWPQ was examined by correlating its scores with scores on a presenteeism questionnaire, namely the World Health Organization's Health and Performance Questionnaire (HPQ; Kessler et al., 2003). The absolute presenteeism score showed a moderate positive correlation with the IWPQ task and contextual performance

scales ($r = 0.39$ and 0.33 , respectively), and a weak negative correlation with the CWB scale ($r = -0.16$).

Convergent validity of the IWPQ with work engagement

As expected, work engagement (measured with the UWES-9; Schaufeli, Bakker & Salanova, 2006) showed a moderate positive correlation with the IWPQ task and contextual performance scales ($r = 0.29-0.43$), and a moderate to weak negative correlation with the CWB scale ($r = -0.40- -0.23$).

Discriminative validity of the IWPQ

The IWPQ is able to discriminate between relevant groups (low/high in job satisfaction, and low/high in overall health). Job satisfaction quartiles differed significantly on task performance ($F(3,1420) = 66.49$, $p < 0.001$), contextual performance ($F(3,1420) = 49.04$, $p < 0.001$), and CWB ($F(3,1420) = 86.62$, $p < 0.001$), with persons high in job satisfaction showing higher task and contextual performance, and lower CWB. Also, health quartiles differed significantly on task performance ($F(3,1420) = 35.71$, $p < 0.001$), contextual performance ($F(3,1420) = 29.61$, $p < 0.001$), and CWB ($F(3,1420) = 26.40$, $p < 0.001$), with persons in good health showing higher task and contextual performance, and lower CWB. All quartiles significantly differed from each other.

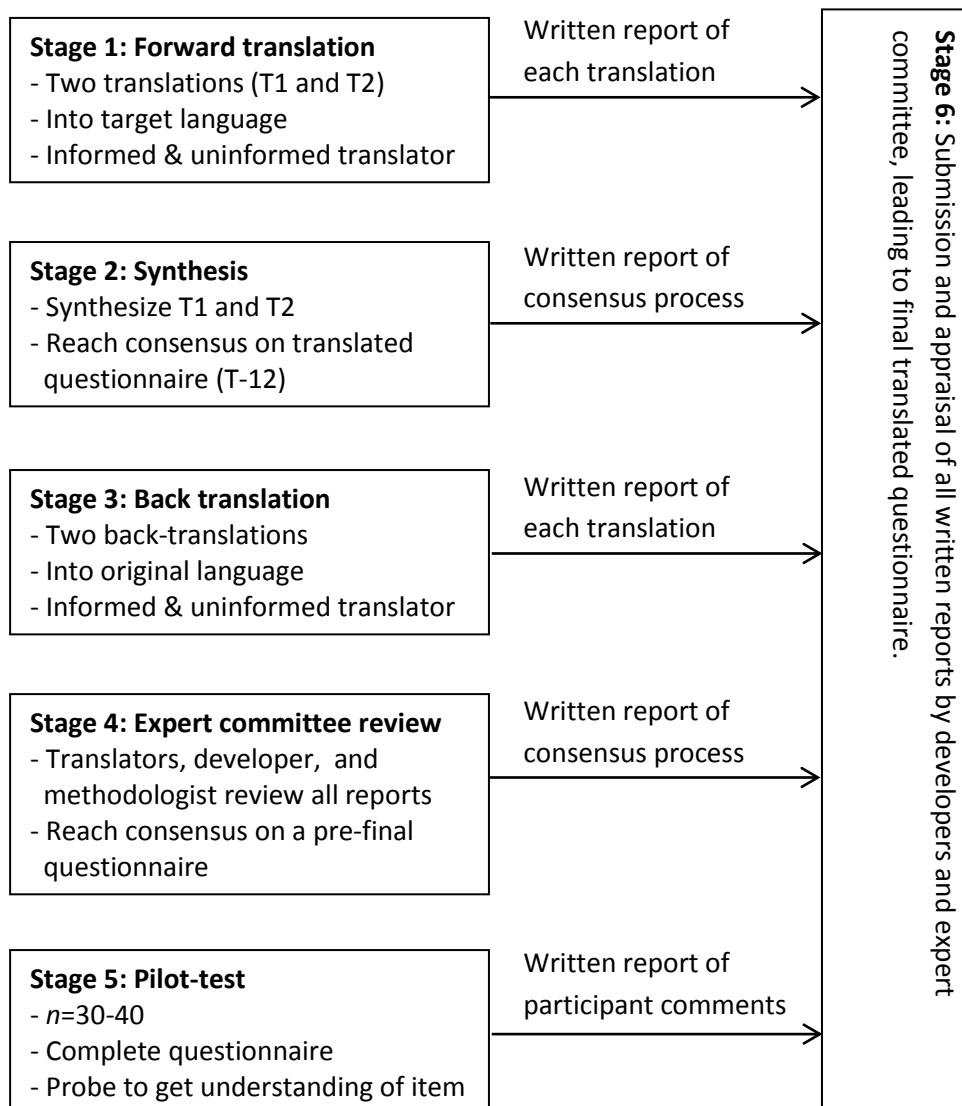
3.3 Responsiveness

Responsiveness - the ability of an instrument to detect change over time in the construct to be measured – can be seen as a type of longitudinal validity (De Vet, Terwee, Mokkink, & Knol, 2011). The responsiveness of the IPWQ was examined in the Be Active & Relax “Vitality in Practice” (VIP) randomized controlled trial (Coffeng et al., 2012). In the trial, significant changes in task performance and contextual performance were found over time (Coffeng et al., 2014). However, no firm conclusions can be drawn about the responsiveness of the IWPQ, and this characteristic should be further examined in future research (Koopmans et al., 2014c).

3.4 Cross-cultural validity

The original version of the IWPQ is in the Dutch language. The IWPQ is also available in the American-English language (Koopmans et al., in press). Cross-cultural adaptation from Dutch to American-English followed the guidelines proposed by Beaton et al. (2000), see Figure 2. The process consisted of five steps: a forward translation by two independent translators, synthesis, back-translation by two other independent translators, an expert committee review, and pilot-testing. Cognitive interviews with 40 American workers showed that the comprehensibility, applicability, and completeness of the American-English IWPQ was good. Also, the study showed good results concerning the measurement properties of the American-English IWPQ (e.g., Cronbach's alphas of 0.79, 0.83 and 0.89, respectively, and good content validity). Researchers who want to adapt the IWPQ to other languages, are advised to use the guidelines proposed by Beaton et al. (2000).

Figure 2. Stages of the cross-cultural adaptation process, based on Beaton et al. (2000).



4. Practical use and scoring

The IWPQ was developed for research purposes, as a short questionnaire to measure individual work performance comprehensively in a generic working population. Thus, it is suitable in research studies which include either workers from a specific type of job and/or for research studies which include workers from different types of jobs (e.g. company-wide or nation-wide surveys). Due to its generic nature, the IWPQ is less suitable for use in individual evaluations, assessments, and/or feedback.

It takes about 2 to 3 minutes to complete the IWPQ. The IWPQ can be administered electronically, or via pen and paper. The IWPQ can be filled out individually, as well as by colleagues or supervisor(s). However, only the individual version has so far been validated.

It is recommended to include the instructions at the top of the IWPQ before administering the questionnaire. Although the IWPQ instruction and questions were shown to be understandable for all types of workers (Koopmans et al., 2013b), if necessary, it can be checked if the participant(s) have understood the instruction and questions. In order to avoid answering bias that might result from specific connotations related to ‘work performance,’ this term is not used in the instruction of the questionnaire. Instead, the more neutral term ‘behaviors at work’ was used in the instruction. For this reason, it is recommended not to include the title of the questionnaire at the top of the form. Also, it is recommended not to include the names of the subscales when administering the questionnaire.

Standard, the IWPQ 1.0 uses a 3-month recall period. So far, only the 3-month recall period has been validated. However, the recall period may be adjusted according to the objectives of the study.

At least 75% of the scale questions have to be completed, to allow valid calculation of a subscale or overall score. This means that for task performance, at least 4 of the 5 questions have to be answered, for contextual performance at least 6 of the 8 questions, and for CWB at least 4 of the 5 questions. To allow valid calculation of an overall score, all three subscales have to satisfy the above requirements.

Mean scores on the IWPQ scales can be calculated by adding the scores on the items in the subscale, and dividing the sum by the number of items in the subscale. Hence, the IWPQ yields three subscale scores that range between 0 and 4, with higher scores reflecting better work performance.

Example:

	Task performance					Contextual performance								CWB				
Item	1	2	3	4	5	7	8	9	10	11	12	13	14	15	16	17	18	19
Score	2	3	4	4	3	2	3	3	2	3	3	2	3	2	0	1	1	0

Calculation:

Mean task performance score: $(2 + 3 + 4 + 4 + 3) / 5 = 3.20$

Mean contextual performance score: $(2 + 3 + 3 + 2 + 3 + 3 + 2 + 3) / 8 = 2.63$

Mean CWB score: $(2 + 0 + 1 + 1 + 0) / 5 = 0.80$

5. Interpretation and Dutch norms

In order to interpret the IWPQ scores, the mean scores from our initial Dutch reference database can be used ($n = 1,424$). In Table 2, the mean (and SD) scores from our Dutch reference database are presented. If desired, means for more specific norm groups (e.g., a specific type of occupation) can be requested from the author.

Table 2. Mean (M) and standard deviation (SD) of the IWPQ scores, for a general Dutch population.

	Task performance	Contextual performance	CWB
	M (SD)	M (SD)	M (SD)
Total sample ($n = 1,424$)	2.67 (0.63)	2.31 (0.77)	1.11 (0.67)
Blue collar ($n = 442$)	2.77 (0.62)	2.30 (0.82)	1.03 (0.63)
Pink collar ($n = 540$)	2.68 (0.63)	2.31 (0.76)	1.09 (0.71)
White collar ($n = 442$)	2.55 (0.63)	2.34 (0.72)	1.21 (0.66)

The distribution of scores presented in Table 3 can serve as a guide for interpretability. An interpretation of the scores, based on percentiles, is given from "very high" to "very low" performance. This interpretation is presented separately for each occupational sector, because Differential Item Functioning (DIF; Tennant & Conaghan, 2007) was identified for occupational sectors (Koopmans et al., 2014b). Please note that this guide cannot be used to interpret change scores. The interpretability of change scores remains a question for future research.

Table 3. Interpretation of the IWPQ scores for Dutch blue, pink, and white collar workers.

	Blue collar			Pink collar			White collar		
	TP	CP	CWB	TP	CP	CWB	TP	CP	CWB
Interpretation									
"Very low" ($\leq 10^{\text{th}}$ percentile)	≤ 2.00	≤ 1.25	≤ 0.20	≤ 1.83	≤ 1.25	≤ 0.00	≤ 1.83	≤ 1.37	≤ 0.40
"Low" (10^{th} - 25^{th} percentile)	2.01 - 2.49	1.26 - 1.74	0.21 - 0.59	1.84 - 2.32	1.26 - 1.74	0.01 - 0.59	1.84 - 2.16	1.38 - 1.87	0.41 - 0.79
"Average" (25^{th} - 75^{th} percentile)	2.50 - 3.16	1.75 - 2.99	0.60 - 1.39	2.33 - 2.99	1.75 - 2.87	.60 - 1.59	2.17 - 2.99	1.88 - 2.87	0.80 - 1.59
"High" (75^{th} - 90^{th} percentile)	3.17 - 3.49	3.00 - 3.24	1.40 - 1.79	3.00 - 3.49	2.88 - 3.12	1.60 - 1.99	3.00 - 3.32	2.88 - 3.24	1.60 - 1.99
"Very high" ($\geq 90^{\text{th}}$ percentile)	≥ 3.50	≥ 3.25	≥ 1.80	≥ 3.50	≥ 3.13	≥ 2.00	≥ 3.33	≥ 3.25	≥ 2.00

6. IWPQ Dutch version

Instructie:

De volgende vragen gaan over uw *gedrag op het werk* in de afgelopen 3 maanden. Om een goed beeld te krijgen van uw gedrag op het werk, is het belangrijk dat u de vragenlijst zo nauwkeurig en eerlijk mogelijk invult. Weet u niet zeker wat u moet antwoorden op een vraag? Geef dan het best mogelijke antwoord. Het invullen van de vragenlijst duurt ongeveer 5 minuten. De vragenlijst is geheel anoniem: uw antwoorden komen niet terecht bij uw leidinggevende of collega's.

Schaal 1: Taakprestatie (5 items)					
In de afgelopen 3 maanden...	Zelden	Soms	Regelmatig	Vaak	Altijd
1. Lukte het mij om mijn werk zo te plannen, dat het werk op tijd af was.	☐	☐	☐	☐	☐
2. Hield ik voor ogen welk resultaat ik moest behalen met mijn werk.	☐	☐	☐	☐	☐
3. Lukte het mij om hoofdzaken van bijzaken te scheiden.	☐	☐	☐	☐	☐
4. Lukte het mij om mijn werk goed uit te voeren met zo min mogelijk tijd en inspanning.	☐	☐	☐	☐	☐
5. Heb ik een optimale planning gemaakt.	☐	☐	☐	☐	☐

Schaal 2: Contextuele prestatie (8 items)

In de afgelopen 3 maanden...	Zelden	Soms	Regelmatig	Vaak	Altijd
6. Ben ik uit mezelf met nieuwe taken begonnen, als mijn oude taken af waren.	☐	☐	☐	☐	☐
7. Heb ik uitdagende werktaken op me genomen, als die er waren.	☐	☐	☐	☐	☐
8. Heb ik gewerkt aan het bijhouden van mijn vakkennis.	☐	☐	☐	☐	☐
9. Heb ik gewerkt aan het bijhouden van mijn werkvaardigheden.	☐	☐	☐	☐	☐
10. Kwam ik met creatieve oplossingen voor nieuwe problemen.	☐	☐	☐	☐	☐
11. Heb ik extra verantwoordelijkheden op me genomen.	☐	☐	☐	☐	☐
12. Zocht ik steeds naar nieuwe uitdagingen in het werk.	☐	☐	☐	☐	☐
13. Had ik een actieve inbreng in werkoverleg of vergaderingen.	☐	☐	☐	☐	☐

Schaal 3: Contraproductief gedrag (5 items)

In de afgelopen 3 maanden...	Nooit	Zelden	Soms	Regelmatig	Vaak
14. Heb ik geklaagd over onbelangrijke zaken op mijn werk.	☐	☐	☐	☐	☐
15. Heb ik problemen groter gemaakt dan ze waren op mijn werk.	☐	☐	☐	☐	☐
16. Heb ik me gericht op de negatieve kanten van een werksituatie, in plaats van op de positieve kanten.	☐	☐	☐	☐	☐
17. Heb ik gepraat met collega's over de negatieve kanten van mijn werk.	☐	☐	☐	☐	☐
18. Heb ik gepraat met mensen van buiten de organisatie over de negatieve kanten van mijn werk.	☐	☐	☐	☐	☐

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7. IWPQ American-English version

Instructions:

The following questions relate to how you carried out your work during the past 3 months. In order to get an accurate picture of your conduct at work, it is important that you complete the questionnaire as carefully and honestly as possible. If you are uncertain about how to answer a particular question, please give the best possible answer. The questionnaire will take about 5 minutes to complete. The questionnaire is completely anonymous: your answers will not be seen by your supervisor(s) or colleagues.

Scale 1: Task performance (5 items)					
In the past 3 months...	Seldom	Sometimes	Regularly	Often	Always
1. I was able to plan my work so that I finished it on time.	☐	☐	☐	☐	☐
2. I kept in mind the work result I needed to achieve.	☐	☐	☐	☐	☐
3. I was able to set priorities.	☐	☐	☐	☐	☐
4. I was able to carry out my work efficiently.	☐	☐	☐	☐	☐
5. I managed my time well.	☐	☐	☐	☐	☐

Scale 2: Contextual performance (8 items)					
In the past 3 months...	Seldom	Sometimes	Regularly	Often	Always
6. On my own initiative, I started new tasks when my old tasks were completed.	☐	☐	☐	☐	☐
7. I took on challenging	☐	☐	☐	☐	☐

tasks when they were available.

- | | | | | | | |
|-----|---|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| 8. | I worked on keeping my job-related knowledge up-to-date. | ☐ | ☐ | ☐ | ☐ | ☐ |
| 9. | I worked on keeping my work skills up-to-date. | ☐ | ☐ | ☐ | ☐ | ☐ |
| 10. | I came up with creative solutions for new problems. | ☐ | ☐ | ☐ | ☐ | ☐ |
| 11. | I took on extra responsibilities. | ☐ | ☐ | ☐ | ☐ | ☐ |
| 12. | I continually sought new challenges in my work. | ☐ | ☐ | ☐ | ☐ | ☐ |
| 13. | I actively participated in meetings and/or consultations. | ☐ | ☐ | ☐ | ☐ | ☐ |

Scale 3: Counterproductive work behavior (5 items)

- | In the past 3 months... | Never | Seldom | Sometimes | Regularly | Often |
|---|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| 14. I complained about minor work-related issues at work. | ☐ | ☐ | ☐ | ☐ | ☐ |
| 15. I made problems at work bigger than they were. | ☐ | ☐ | ☐ | ☐ | ☐ |
| 16. I focused on the negative aspects of situation at work instead of the positive aspects. | ☐ | ☐ | ☐ | ☐ | ☐ |
| 17. I talked to colleagues about the negative aspects of my work. | ☐ | ☐ | ☐ | ☐ | ☐ |

18. I talked to people outside

the organization about

the negative aspects of

my work.

☐☐☐☐☐

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