



Measuring adaptability demands of jobs and the adaptability of military and civilians

Esther A. P. B. Oprins, Karel van den Bosch, and W. Venrooij

Netherlands Organization for Applied Scientific Research (TNO), Soesterberg, The Netherlands

ABSTRACT

Jobs within the military and in civil society differ in character and requirements. It is assumed that differences in job types both within civil and military domains require different dimensions of adaptability competency. The present study investigates this assumption. The Dutch Adaptability Dimensions And Performance Test (D-ADAPT) was used to measure both the adaptability demands of jobs, and of self-assessed adaptability competency of employees. In addition, the predictive value of certain personality traits (openness, neuroticism, and conscientiousness) and other relevant personal characteristics (cognitive flexibility, learning goal orientation) on various adaptability dimensions was explored. Military personnel were found to estimate their adaptability competency as higher than civilians did. With respect to the civilian jobs, the adaptability demands varied across job types. This was not found in the set of military jobs, possibly due to a smaller variety of jobs included. This study also shows that a variety of personal characteristics predict different dimensions of adaptability. Cognitive flexibility was found to be the best predictor for adaptability in general. Openness turned out to be a good predictor within the civilian group, whereas neuroticism was a better predictor within the military group. Results of this study contribute to a better understanding of work adaptability and influencing personality characteristics. Practical implications for selection and training of personnel can be derived, based on the acquisition of adaptability competency that matches the type of job.

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What is the public significance of this article?— This study has shown that different job types require different dimensions of adaptability competence. In addition, military generally seem to be more adaptive than civilians due to military job requirements. High adaptability competency helps military to be maximally prepared to act in uncertain, dynamic and changing operational situations. Organizations should select and train military personnel on specific adaptability dimensions that are required for certain jobs.

Modern military missions take place in dynamic and highly interactive contexts, carrying ample new threats. In fact, military conflicts are characterized by so-called “deep uncertainty” (De Jong, van Dalen, & Dekkers, 2014, p. 182). Yet, it is the responsibility of the military commander to generate and deploy the resources needed to control a conflict, to win it, or to end it, taking the mission orders and constraints into account. Adaptability competency is needed to be able to interpret and understand rapidly changing operational environments and to respond appropriately. The adaptability of a commander refers to the following qualities: (a) being responsive to immediate

threats and opportunities that arise; (b) being resilient to damage and shocks; (c) being flexible in finding different ways to cope with environmental demands; (d) having the agility to shift from one strategy to another as called for by significant changes in conditions (Grisogono & Radenovic, 2011). Therefore, high adaptability competency of military will lead to effective decision making, high performance, and resilience during operational missions (Dandeker, 2006; De Jong et al., 2014). Consequently, research on adaptability in the military domain and on how this can be improved is quite valuable.

Over the years, the conceptualization of adaptability, adaptivity, and adaptive performance has been studied from various perspectives (see e.g., Ployhart and Bliese (2006) for an overview). This study views adaptability as a competency of individuals, partly determined by innate personal qualities and partly by acquired skills. Insight in this competency can contribute to the selection and training of employees for a specific job.

Different jobs expose employees to different situations, each requiring their own dimensions of adaptability. Employees need competency in the situation-appropriate dimensions of adaptability to demonstrate

CONTACT Esther A.P.B. Oprins ✉ esther.oprins@tno.nl 📧 Department of Training and Performance Innovations, Netherlands Organization for Applied Research (TNO), P.O. Box 23, Soesterberg 3769 ZG, the Netherlands.

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adequate behavior (Pulakos, Arad, Donovan, & Plamondon, 2000). For instance, some situations ask for physical adaptability, other situations may particularly require cultural adaptability. The main hypothesis in this study is that different job types require different dimensions of adaptability. It is also expected that different personality traits and other personal characteristics are related to a different competency in the various dimensions of adaptability.

The results of this study do not only contribute to more theoretical insight into the multidimensional concept of adaptability and its predictors, but also has practical implications for military organizations. They can select and train military personnel on specific adaptability dimensions that are required for certain jobs. High adaptability competency helps military to be maximally prepared to act in uncertain, dynamic, and changing operational situations. Commanders and their units improve their decision making and performance in these dynamic situations, resulting in high operational readiness.

Adaptability

Adaptability and related concepts such as adaptive behavior, adaptivity or adaptive performance have been investigated from many scientific perspectives, such as task performance (Pulakos et al., 2000), training (Kozlowski et al., 2001), and individual differences (Thoresen, Bradley, Bliese, & Thoresen, 2004). Ployhart and Bliese (2006) have incorporated a number of these perspectives in their theory on individual adaptability. They defined individual *adaptability* as “an individual ability, skill, disposition, willingness, and/or motivation to change or fit different task, social or environmental features” (p. 13). In other words, they view adaptability as a relatively stable individual quality, that can nevertheless be influenced by internal and external forces. Pulakos et al. (2002) view adaptability as multidimensional and recognize different dimensions of adaptability, needed in different situations. They developed the following eight-dimensional taxonomy of adaptive job performance: (a) creative problem solving, (b) dealing with uncertain and changing circumstances, (c) learning new skills, knowledge and procedure, (d) interpersonal adaptability, (e) cultural adaptability, (f) physical adaptability (g) handling emergency situations, and (h) coping with stress. Following this multidimensional view, in the present study adaptability is seen as a situation-specific competency. Whether an individual will be able to act adaptively depends to a large extent on the nature of the situation and on personal dispositions (Campbell, 1999; Campbell, McCloy, Oppler, & Sager, 1993; Neal & Hesketh, 1999; Pulakos et al., 2000). It is, therefore, interesting to

investigate which dimensions of adaptability are required in which situations, how they can be measured and how they differ between jobs (Pulakos et al., 2000).

Adaptability is considered a key competency by the military to be able to perform well in complex and changing situations (Dekkers, van Daalen, & van den Boor, 2016). This is supported by the many reviews of adaptability from a military perspective (e.g., Bowden, Laux, Keenan, & Knapp, 2003; Kozlowski & DeShon, 2005; Kozlowski et al., 2001; Pernin et al., 2013; Reed, 2012; Thompson, 2008; Tillson et al., 2005; Tucker & Gunther, 2009). Making effective decisions is challenging for military personnel in operational environments which are new, changing, uncertain, and unexpected. Being able to quickly assess, and to adapt to such situations is a prerequisite for military (Dandeker, 2006). The assumption that the situation determines the adaptability demands (e.g., Campbell et al., 1993; Pulakos et al., 2000) has implications for the military. It is very likely that the different military jobs and the variety of working environments call upon different dimensions of adaptability. For example, a special forces marine may operate in changing environments that require much endurance (e.g., extreme heat or cold, no access to water or food). These soldiers have to adapt their behavior in such a way that they can continue the operation adequately. In contrast, the competency to adapt to physically demanding circumstances may be less relevant for a high-ranking officer who operates at the strategic level. This officer, instead, may be more often faced with situations in which he has to be alert and receptive to the values and interests of the other parties he negotiates with. In such situations, he should adapt his communication style and strategies in such a way that the chances of mission success increase. In general, to be maximally successful, there should be a match between the adaptability demands of the situations in which military employees work and their individual adaptability competency. More insight into these relationships can, for example, benefit the composition of an operational team (e.g., personnel policy), selection of personnel for particular military jobs, and specialized training in adaptability competency that perfectly matches with the job demands.

Of course, a thorough understanding of adaptability in relation to the requirements of different job types is also important for civil professions. Many studies have been performed in the area of career planning and policy (e.g., Campbell et al., 1993; Cronshaw & Jethmalani, 2005; Fugate, Kinicki, & Ashforth, 2004; Griffin & Hesketh, 2003). There are various examples of civilian jobs requiring high adaptability, especially in high-risk environments

(e.g., fireman, policeman) and cognitively complex environments (e.g., top managers). Although military jobs differ in the required level of adaptivity, because of the dynamic and unpredictable nature of military working environments and deployments, adequately fulfilling military jobs require generally higher adaptability competency than fulfilling comparable civil jobs.

Predictors of adaptability

Adaptability is considered a competency that can, to a certain extent, be improved by training and experience (Pulakos et al., 2000). Certain dispositional properties (internal and stable characteristics of a person) determine the degree to which individuals can improve and apply their adaptive behavior in different situations. Studies revealed that adaptability in different job situations is predicted by certain personality traits and cognitive abilities (Pulakos et al., 2002; Ployhart & Bliese, 2006; Thoresen, Bradley, Bliese & Thoresen, 2004; Zorzie, 2012). This implies that some individuals are more likely to show adaptive behavior, and can learn how to do this better and faster, than other individuals.

Insight into the personal characteristics that predict the acquisition and application of adaptability competency is quite relevant for organizations that operate in uncertain and rapidly changing environments, as they need their personnel to be qualified and trained. Military organizations worldwide already test their recruits on a number of personality traits and competencies; only those candidates who meet the required levels are admitted to military service (Campbell, Castaneda, & Pulakos, 2009; McCormack & Mellor, 2002).

We searched the literature to find the most frequently reported personal characteristics that predict the acquisition and application of adaptability competency.

Cognitive flexibility

Cognitive ability has also shown to be a good predictor of an individual's adaptability (e.g., Lepine, Colquitt, & Erez, 2000). However, to be adaptive, people should also be able to reflect upon their thinking. Stanovich (2012) has shown that individual differences in people's thinking are less than perfectly correlated with individual differences in intelligence. He argues that this can be explained by the idea that intelligence and reflective thinking involve different levels of cognition. An individual's ability to reflect upon a situation, on one's own thinking about the situation, and on the appropriate strategies, is often referred to as cognitive flexibility. Spiro, Coulson, Feltovich, and Anderson (1988) defined *cognitive flexibility* as the ability to quickly reshape cognitive processes to respond adequately to changing,

new, and uncertain situations. Studies confirm that adaptability and cognitive flexibility are closely related (Barak & Levenberg, 2016; Cañas et al., 2005). Barak and Levenberg (2016) consider cognitive flexibility to be necessary to adapt to new learning environments, to transfer knowledge to new situations, and to understand and solve unfamiliar problems. Cañas et al. (2005) argued that people who are cognitively flexible are better able to adapt to new environmental conditions. They describe the process of individual cognitive flexibility in terms of detection, situational assessment, and adaptation. In addition, cognitive flexibility also relates to people's willingness to be flexible (Martin & Rubin, 1995). Individuals with high cognitive flexibility quickly detect changes in the task or in the task environment and adapt their thinking or strategies to the new situation. This cognitive flexibility enables them to maintain effective performance even when the operational environment changes. Therefore, we have only included a measure of cognitive flexibility, and not measures of cognitive ability, to investigate its predictive value for adaptability in this study.

Learning goal orientation

Individuals with a mastery goal orientation tend to view the acquisition of new skills and mastering new situations as opportunities to develop their competency. In contrast, individuals with a performance goal orientation prefer to receive favorable judgments and avoid negative judgments; acquiring new skills or mastering new situations might negatively influence their performance and thus the judgments (Button, Mathieu, & Zajac, 1996). This distinction in attitude toward behaving in unfamiliar situations has been related to adaptability (Kozlowski et al., 2001). We assume that individuals who have a mastery learning orientation will respond more adaptively to novel or challenging achievement situations, because of their tendency to reflect on such situations with the intention to improve their skills. In contrast with mastery-oriented people, performance-oriented individuals are more likely to persevere in applying strategies that have proven to be successful in previous situations, but that may not necessarily be appropriate in new and changed situations. In addition, it has been found that performance-oriented individuals tend to avoid novel or challenging achievement situations (Button et al., 1996). We therefore hypothesize that individuals with a mastery goal orientation are more adaptive than individuals with a performance goal orientation and included a measure of learning goal orientation (Button et al., 1996; Kozlowski et al., 2001) in this study.

Personality traits

People differ from one another in their habitual patterns of behavior, thought, and emotion. These patterns can be described in terms of personality traits. Traits are considered to be relatively stable over time, and they systematically influence people's behavior (Allport, 1927). The best-known taxonomy of personality traits is the big five (Barrick & Mount, 1991). We selected three of these five traits, as these have been found to explain individual differences in adaptability in previous research (Lepine et al., 2000; Ployhart & Bliese, 2006; Pulakos et al., 2002; Zorzie, 2012).

The first trait selected is openness to experience (Lepine et al., 2000; Pulakos et al., 2002; Thoresen et al., 2004; Zorzie, 2012). *Openness to experience* refers to being curious, broad-minded, and intelligent (Barrick & Mount, 1991). Individuals who score high on openness to experience are actively searching for alternative strategies and effective behaviors. The second trait selected is neuroticism (the reverse of emotional stability). A person who scores low on neuroticism tends to remain calm and levelheaded when confronted with difficult, stressful, or changing situations (Pulakos et al., 2002; Zorzie, 2012). The third trait selected is conscientiousness. This refers to being careful, organized and having the tendency to persevere (Barrick & Mount, 1991). A conscientious person is likely to persist in a thoughtful, systematic manner when difficulties arise in new or changing situations and is thus more likely to be adaptive (Lepine et al., 2000; Pulakos et al., 2002; Zorzie, 2012).

The literature provides less evidence for the importance of the other two personality traits of the big five taxonomy (extraversion and agreeableness) for adaptability. We therefore did not include them in the present study.

The present study

The present study investigates whether adaptability demands systematically vary with job types within the military domain and within the civil domain. For instance, top managers most probably have to be adaptive in solving difficult problems but probably do not need to apply adaptability competency in physically demanding situations. In contrast, employees working in healthcare or soldiers during missions are confronted with physically demanding situations in which they should be adaptive. We assume that military personnel, in general and especially during deployments, have higher adaptability competency than civilians.

In addition, we investigate how certain personal characteristics predict various dimensions of adaptability competency. Analyses may reveal different

relationships, and the patterns within the military population could be different from those within the civilian population. For instance, openness to experiences may be especially relevant for employees working in culturally demanding situations, whereas neuroticism may be a good (reverse) predictor for handling stress situations. In addition, because cognitive flexibility is considered to be the cognitive part of adaptability (Barak & Levenberg, 2016), this measure may be found to relate to the cognitive dimensions of adaptability such as solving difficult problems. Comparable with cognitive flexibility, learning goal orientation has also been found to have a strong relationship with these cognitively related dimensions (Kozlowski et al., 2001).

Method

Participants

In total, 337 participants were involved in the study, consisting of 151 military (125 male, 18 female, 8 with unknown gender) and 186 civilians (97 male, 89 female). To investigate whether different military job types impose different adaptability demands, military participants were recruited from the following job types: operational planning staff ($n = 38$), operations support planning staff ($n = 33$), staff that carry out operations ($n = 6$), staff that carry out operations support (e.g., engineers; medics; $n = 38$), staff that carry out additional services (e.g., messengers; nourishment ($n = 36$)). Table 1 provides a description of these military job types.

The aforementioned taxonomy of military job types was developed in consultation with the project military officer. The objective was to develop a broad classification based upon commonalities in a set of military job types, which reflects the nature of the military organization. The initial taxonomy was presented to an ad-hoc team of military commanders (i.e., three colleagues of the project officer) and was subsequently slightly modified based on their review.

The occupations of the civilian participants were classified into job types according to the Standard Occupational Classification¹ system, in line with the study of Pulakos et al. (2000). For some of the job types, we had only a few participants in our study. We decided to analyze only the job types with seven or more participants. A total of 139 out of the original 186 civil participants remained in the study, divided over nine civil job types. Using the Standard Occupational Classification system, the participants were classified into the following job types:

Table 1. Military job types and their descriptions.

Military job type	Description
Staff of operational planning ($n = 38$)	Personnel of this group do the planning of operations, but they themselves do not or seldom work in the operational theatre of the military mission. They often work in teams, and frequently communicate and coordinate with lower control (commanders in the field) and higher control (HQ-level). They often work under time pressure and have to make decisions in uncertainty.
Staff that plan operations support ($n = 33$)	Staff that arranges the support required for the mission (e.g., engineering corps, logistics, medical support). The job is conducted in the mission area itself, and entails the planning and command of the operation support, involving communications with members of the support team, but also with commanders of other support teams, and with the overall mission commander.
Staff that carry out operations ($n = 6$)	Commanders in the field; they mainly perform tactical planning and command, and they actively participate in the operations they lead (e.g., a platoon commander). His work involves communications by radio, and face-to-face with team members and lower-control. He sometimes has to deal with physically demanding circumstances. Operations may involve uncertain, new, and culturally unfamiliar circumstances.
Staff that carry out operations support ($n = 38$)	Personnel that execute the support required for the military operation (e.g., engineer corps; medics). The employees operate in the military arena; they often work in teams; they frequently communicate with others (both military and others) how to organize the work to be done.
Staff that carry out additional services ($n = 36$)	Personnel that carry out activities for meeting the prerequisite conditions of a military mission, for example, IT developers, project bureau; administration, catering. They do not work in the operational arena of the military mission. They tend to have a detailed job description and work in mostly predictable work environments.

management ($n = 13$); life, physical, and social science ($n = 12$); education, training, and library ($n = 29$); arts, design, entertainment, sports, and media ($n = 8$); healthcare practitioners and technical ($n = 10$); healthcare support ($n = 13$); sales and related ($n = 13$); office and administrative support ($n = 33$); and transportation and material moving ($n = 8$).

Measures

All participants received a questionnaire, consisting of the Dutch Adaptability Dimensions And Performance Test (D-ADAPT) and the predictor measures. The measurements were conducted online, using a software application (Survalyzer, Zurich, Switzerland).

D-ADAPT

The D-ADAPT was developed and validated for the Dutch Ministry of Defense. It can, however, be used in other domains as well (Venrooij, Oprins & Van den Bosch, 2015). D-ADAPT is designed as an easy-to-administer instrument to assess the adaptability demands of a job (the first part is therefore called *work-ADAPT*). D-ADAPT was developed in accordance with the concept of the Job Adaptability Inventory (JAI): an eight-dimensional taxonomy of adaptive job performance (Pulakos et al., 2000). In contrast to the JAI that only measures adaptability requirements of a job, the D-ADAPT can also be used for self-assessment in adaptability competency. This is included in the second part of D-ADAPT: 'self-ADAPT'. The self-ADAPT was based on the I-ADAPT-M; an instrument to obtain a self-report measure of adaptability (Ployhart & Bliese, 2006, p. 29).

The D-ADAPT can be considered to be a revised combination of JAI and I-ADAPT-M. In the development of the D-ADAPT we used items from the JAI and I-ADAPT-M and translated them into Dutch. In the *work-ADAPT*, participants were asked to answer the following question for each behavioral description: How important do you consider this behavior for your work? A 5-point Likert scale varying from 1 (*not important*) to 5 (*very important*) was used to answer this question. In the *self-ADAPT*, participants were asked the following question for each behavioral description: How effective do you consider yourself at performing this behavior in your work? Participants were asked to rate their adaptability competency on a 5-point Likert scale varying from 1 (*not effective*) to 5 (*very effective*).

The development of D-ADAPT started with formulating a series of six to ten behavioral descriptions for each of the eight dimensions of adaptability, similar to the JAI and I-ADAPT-M. This first version of D-ADAPT was evaluated with subject matter experts, followed by a construct validation study (*reference omitted for masked review*). Factor analyses, reliability analyses, and item-total correlations were used to eliminate items with inadequate behavioral descriptions, rendering a series of five to six suitable behavioral descriptions per adaptability dimension. Factor analysis on data of a subsequent sample of participants revealed that scores on the adaptability dimensions dealing with uncertain or unpredictable work situations and learning new tasks, technologies, and procedures (adopted from Pulakos et al., 2000) still showed inconsistent loadings. Furthermore, the reliability of scores was low for these two dimensions. It was concluded that the scope of these dimensions was too broad, probably partly covering other abilities, and overlapping with other adaptability dimensions. It was decided to

eliminate these dimensions in the revised version of D-ADAPT used in the present study. This current version of the D-ADAPT comprises 31 items divided over the following six adaptability dimensions: handling crisis situations, solving difficult problems, culturally demanding situations, physically demanding circumstances, handling work stress, and interpersonal interactions² (see the appendix for the items of the D-ADAPT).

The results of the reliability analysis (Cronbach's alpha, number of items) based on the total sample ($n = 237$) are presented in Table 2.

The Cronbach's alpha's were generally high, except for interpersonal interaction ($\alpha < .70$). For each adaptability dimension, the average score was calculated.

Predictor measures

The predictor measures were adopted from existing validated scales. The measure for learning goal orientation was taken from Button et al. (1996). The learning goal orientation scale consists of seven items (Cronbach's alpha = .78). The three personality traits were measured using the NEO Five-Factor Inventory (McCrae & Costa, 2010). The number of items and the found reliability for each of the traits were, respectively, conscientiousness (12 items, $\alpha = .79$); neuroticism (12 items, $\alpha = .89$); openness (12 items, $\alpha = .74$). For measuring cognitive flexibility, the 12-item test of Martin and Rubin (1995) was used. The reliability found in the present study was .73.

Results

First, results regarding the question whether adaptability demands vary with job type are presented. Then, we address the comparison between military and civil jobs regarding their self-assessed adaptability competency.

Table 2. Reliability of the Work-ADAPT and Self-ADAPT.

Adaptability dimensions	<i>n</i> (items)	Work- ADAPT α	Self- ADAPT α
Handling crisis situations (e.g., undertake action when the situation becomes dangerous)	5	.94	.88
Solving difficult problems (e.g., adjust your plan to solve a problem)	5	.81	.81
Culturally demanding situations (e.g., consider how to behave in another cultural environment)	5	.93	.91
Physically demanding circumstances (e.g., consider how to act in physically demanding situations)	6	.95	.84
Handling work stress (e.g., recognize signals of stress in difficult situations)	5	.89	.82
Interpersonal interaction (e.g., revise your opinion by taking perspective of others into account)	5	.68	.64

Note. ADAPT = Adaptability Dimensions and Performance Test.

Finally, we present the results on the relationships between personal characteristics and the various dimensions of adaptability, separately for military and civil employees to explore similarities and differences.

Adaptability demands of military job types

To investigate whether there are differences in adaptability demands between military job types, a multi-variate analysis of variance was conducted with scores on the six adaptability dimensions of the work-ADAPT as dependent variables, and with military job type as independent factor. Table 3 shows the results.

Using Pillai's trace, a significant effect of job type on the adaptability dimensions was found ($V = .32$), $F(24, 576) = 2.02$, $p < .01$. Subsequently, univariate analyses of variance (ANOVAs) were conducted to investigate the nature of the effect. The data reveal that job types only differed from one another in the demands they impose on the adaptability dimension handling crisis situations. For all other dimensions, no differences between military job types were found. Post hoc comparison (Tukey HSD tests) were conducted to investigate which of the military job type(s) differ from the others with respect to the demands on handling crisis situations. Results revealed that the demands for handling crisis situations were rated higher for jobs within the operational planning staff and lower for staff that carry out additional services compared to the other military job types.

Adaptability demands of civil job types

To investigate whether there are differences in adaptability demands between civil job types, a multi-variate analysis of variance was conducted with scores on the six adaptability dimensions of the work-ADAPT as dependent variables, and with civil job type (9) as independent factor. Using Pillai's trace, a significant effect of job type on the adaptability dimensions was found ($V = .77$), $F(48, 780) = 2.393$, $p < .001$. Results of separate univariate ANOVAs are shown in Table 4.

These show that the civilian job types have different demands for all adaptability dimensions, except for the

Table 3. Analyses of variance on adaptability demands within military job types, for each of the six adaptability dimensions.

Work-ADAPT–military	<i>df</i>	<i>F</i>	<i>Sig</i>	η^2
Handling crisis situations	4, 146	4.217	.003	.10
Solving difficult problems	4, 146	2.296	.062	.06
Culturally demanding situations	4, 146	1.167	.328	.03
Physically demanding circumstances	4, 146	1.558	.189	.04
Handling work stress	4, 146	.911	.459	.02
Interpersonal interaction	4, 146	1.449	.221	.04

Note. ADAPT = Adaptability Dimensions and Performance Test.

Table 4. Analyses of variance on adaptability demands within civil job types, for each of the six adaptability dimensions.

Work-ADAPT–civilians	<i>df</i>	<i>F</i>	<i>Sig</i>	η^2
Handling crisis situations	8, 130	6.528	.000	.29
Solving difficult problems	8, 130	2.320	.023	.13
Culturally demanding situations	8, 130	2.640	.010	.14
Physically demanding circumstances	8, 130	3.290	.002	.17
Handling work stress	8, 130	1.375	.213	.08
Interpersonal interaction	8, 130	1.933	.060	.11

Note. ADAPT = Adaptability Dimensions and Performance Test.

dimension *handling work stress*. For all other dimensions, the importance was rated differently across job types. To examine which job types differ from one another on the various adaptability dimensions, post hoc comparisons using the Tukey HSD were carried out. Figure 1 shows the mean scores per adaptability dimension for each job type.

For the civil job types, healthcare support has the highest adaptability demands and life, physical and social science the lowest. It also shows differences in specific adaptability demands per job type. For instance, life, physical and social science only shows high means for solving difficult problems, whereas healthcare support has high means on almost every dimension. Physical demanding circumstances is high for both healthcare support and military specific.

Comparing military and civilian employees on adaptability competencies

To investigate whether civilians assess their competency in being adaptive differently than the military, independent *t*-tests were performed with scores on the six adaptability dimensions on the self-ADAPT as dependent measures, and group (civilian, military) as between-subjects factor. Table 5 shows that the military participants evaluated themselves as more adaptive than the civilians

did on all adaptability dimensions, with the exception of the adaptability dimension *interpersonal interaction*: Their scores on this dimension are similar.

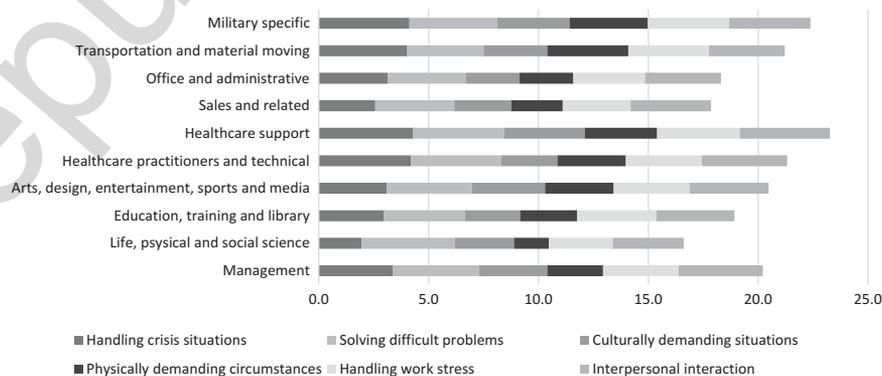
The effect sizes Cohen's *d* vary from small (.20) to moderate (.50).

The relationship between predictor measures and adaptability competencies

To explore the relationship between the five predictor measures and the six adaptability dimensions, we calculated Pearson correlations (bivariate) among all variables involved. Table 6 shows the results for both military and civilian employees.

In general, the correlations within the civilian population are substantially lower than those within the military population, both the intercorrelations and relationships between predictors and adaptability dimensions. The results show that *cognitive flexibility* generally has the highest correlations with the other predictors as well as with the adaptability dimensions in both groups, while *openness* has the lowest correlations. For most of the predictors, we see a varying pattern concerning their relationships with the adaptability dimensions as expected. The intercorrelations among the adaptability dimensions are rather high within the military group, but only moderately high within the civilian group.

Next, a multiple linear regression analysis was performed, separately for the military and the civilian sample, to investigate how the various personal characteristics predict the different adaptability dimensions. The scores on all predictor variables were entered simultaneously in the regression, allowing analysis of the predictive value of each of the variables, in relation to each other and to the criterion variable. The

**Figure 1.** Adaptability demands, for each of the six adaptability dimensions, split by job types.

Each horizontal bar represents the mean adaptability-rating (work-ADAPT) for a particular job type. The military (upper bar) were taken here as one job type. The other bars represent civilian job types. A bar consists of six parts, each representing one of the six adaptability dimensions. The length of the horizontal bar therefore indicates a job type's total level of required adaptability.

Table 5. Independent *t*-tests, comparing self-assessed adaptability competency of military and civil participants, for each of the six adaptability dimensions.

Self-ADAPT	Participant	<i>n</i>	<i>M</i>	<i>SD</i>	<i>t</i>	<i>df</i>	<i>Sig</i>	<i>d</i>	Lower	Upper
Handling crisis situations	Civil	184	3.72	0.61	-4.229	320	.000	-0.45	-0.51	-0.39
	Military	143	3.98	0.54						
Solving difficult problems	Civil	184	3.92	0.52	-2.534	319	.012	-0.26	-0.32	-0.21
	Military	143	4.05	0.46						
Culturally dem. situations	Civil	184	3.33	0.77	-2.777	325	.006	-0.30	-0.37	-0.22
	Military	143	3.54	0.62						
Physically dem. circumstances	Civil	184	3.50	0.55	-5.366	316	.000	-0.58	-0.64	-0.53
	Military	143	3.81	0.51						
Handling work stress	Civil	184	3.56	0.59	-2.691	318	.008	-0.30	-0.36	-0.24
	Military	143	3.73	0.53						
Interpersonal interaction	Civil	184	3.80	0.47	-.435	312	.664	-0.04	-0.09	-0.01
	Military	143	3.82	0.45						

Note. ADAPT = Adaptability Dimensions and Performance Test.

Table 6. Correlations (Pearson) between predictors and adaptability dimensions.

Variable	1	2	3	4	5	6	7	8	9	10	11
1. Learning goal orientation	–	.31	–.06	.23	.23	.13	.28	.07	.150	.04	.13
2. Conscientiousness	.54	–	–.30	–.08	.48	.34	.35	–.02	.24	.19	.12
3. Neuroticism	–.26	–.46	–	.20	–.38	–.23	–.23	.05	–.23	–.18	–.11
4. Openness	.09	–.10	.19	–	.20	–.02	.28	.40	–.03	.14	.22
5. Cognitive flexibility	.52	.61	–.55	.14	–	.40	.56	.13	.21	.19	.28
6. Handling crisis situations	.26	.43	–.40	–.05	.49	–	.53	.04	.55	.34	.24
7. Solving difficult problems	.48	.47	–.52	–.03	.68	.62	–	.31	.31	.37	.47
8. Culturally demanding situations	.00	.16	–.23	.19	.22	.53	.33	–	.19	.22	.46
9. Physically demanding circumstances	.15	.33	–.36	–.08	.28	.67	.46	.51	–	.46	.24
10. Handling work stress	.39	.44	–.35	.05	.47	.46	.55	.31	.56	–	.38
11. Interpersonal interactions	.32	.33	–.30	.09	.48	.50	.61	.49	.48	.53	–

Note. The upper part of the table presents the results of the civilian sample; the lower part of the Table presents the results of the military sample. Results presented in bold are significant at $p < .01$.

regression model for the military sample showed that all predictor variables simultaneously explained 28% of the variance of handling crisis situations, $F_{5, 137} = 10.678$, $p < .05$; for solving difficult problems, they explained 52% of the variance, $F_{5, 137} = 29.965$, $p < .05$; for culturally demanding situations, 13% of the variance, $F(5, 137) = 4.009$, $p < .05$; for physically demanding circumstances, 16% of the variance, $F(5, 137) = 5.325$, $p < .05$; for handling work stress, 28% of the variance, $F(5, 137) = 10.472$, $p < .05$; and for interpersonal interaction, they explained 24% of the variance, $F(5, 178) = 8.848$, $p < .05$. The regression model for the civilian sample showed that all predictor variables simultaneously explained 20% of the variance of handling crisis situations, $F(5, 178) = 8.611$, $p < .05$; for solving difficult problems, they explained 37% of the variance, $F(5, 178) = 20.803$, $p < .05$; for culturally demanding situations, 16% of the variance, $F(5, 178) = 6.857$, $p < .05$; for physically demanding circumstances, 10% of the variance, $F(5, 178) = 3.745$, $p < .05$; for handling work stress, 10% of the variance, $F(5, 178) = 3.570$, $p < .05$; and for interpersonal interaction, they explained 11% of the variance, $F(5, 178) = 4.347$, $p < .05$. Table 7 (military sample) and Table 8 (civilian sample) show that the predictive value of the distinguished variables differ per adaptability dimension.

The pattern is, overall, in accordance with other studies reported in the literature. Within the military sample, cognitive flexibility was found to be the best predictor for those adaptability dimensions that ask for cognitive ability, that is handling crisis situations ($\beta = 0.33$) and solving difficult problems ($\beta = 0.473$), but also for interpersonal interaction ($\beta = 0.38$). The personality trait openness was found to be a good predictor for culturally demanding situations ($\beta = 0.24$), and neuroticism for physically demanding circumstances (reversed; $\beta = -0.25$) and solving difficult problems ($\beta = -0.20$). Conscientiousness did not significantly predict any of the adaptability dimensions within the military group. Within the civilian group, we see both similarities and differences with the military. Again, cognitive flexibility was found to be the best predictor for handling crisis situations ($\beta = 0.31$) and solving difficult problems ($\beta = 0.41$) as well as interpersonal interactions ($\beta = 0.21$). Openness turned out to be a good predictor for almost all adaptability dimensions in contrast with the military: for solving difficult problems ($\beta = 0.20$), culturally demanding situations ($\beta = 0.39$), handling work stress ($\beta = 0.19$), and interpersonal interactions ($\beta = 0.18$). Conscientiousness did not significantly predict any of the adaptability dimensions, like within the military sample. Only within the civilian sample, this was also the case for learning goal orientation and neuroticism.

Table 7. Multiple regression analysis predicting self-assessed competency in each of the six adaptability dimensions by cognitive flexibility, learning goal orientation, and three personality traits, for the military sample.

Adaptability dimension	<i>B</i>	<i>SE</i>	β	<i>t</i>	<i>Sig</i>
Handling crisis situations					
Learning goal orientation	−0.05	0.11	−.04	−0.43	.671
Conscientiousness	0.23	0.14	.17	10.67	.098
Neuroticism	−0.13	0.09	−.14	−10.53	.128
Openness	−0.05	0.10	−.04	−0.50	.620
Cognitive flexibility	0.47	0.16	.33	20.96	.004
Solving difficult problems					
Learning goal orientation	0.22	0.08	.20	20.78	.006
Conscientiousness	−0.07	0.10	−.06	−0.68	.497
Neuroticism	−0.16	0.06	−.20	−20.59	.011
Openness	−0.08	0.07	−.08	−10.18	.239
Cognitive flexibility	0.64	0.11	.51	50.70	.000
Culturally demanding situations					
Learning goal orientation	−0.28	0.15	−.19	−10.93	.056
Conscientiousness	0.21	0.17	.13	10.18	.239
Neuroticism	−0.21	0.11	−.19	−10.86	.065
Openness	0.33	0.12	.24	20.73	.007
Cognitive flexibility	0.17	0.20	.10	0.84	.402
Physically demanding circumstances					
Learning goal orientation	−0.07	0.12	−.06	−0.57	.570
Conscientiousness	0.28	0.14	.23	20.03	.045
Neuroticism	−0.23	0.09	−.25	−20.53	.012
Openness	0.00	0.10	.00	−0.04	.967
Cognitive flexibility	0.03	0.16	.02	0.18	.854
Handling work stress					
Learning goal orientation	0.19	0.11	.15	10.67	.097
Conscientiousness	0.22	0.14	.17	10.64	.104
Neuroticism	−0.12	0.09	−.13	−10.40	.163
Openness	0.07	0.09	.06	0.71	.479
Cognitive flexibility	0.29	0.16	.20	10.85	.066
Interpersonal interactions					
Learning goal orientation	0.11	0.10	.10	10.08	.281
Conscientiousness	0.01	0.12	.01	0.12	.904
Neuroticism	−0.05	0.07	−.06	−0.63	.531
Openness	0.05	0.08	.05	0.60	.552
Cognitive flexibility	0.46	0.14	.38	30.41	.001

Discussion

The ability of people to appreciate the nature of new and changing working situations, and to be able to adjust their behavior to achieve and maintain optimal performance is important for any professional organization, especially for those that operate in uncertain and rapidly changing environments, like the military. Adaptability competency helps commanders and their units in their decision making process and optimizes performance, and is therefore particularly critical in deployments. Tools that help to identify what a particular job requires in terms of adaptability and that can provide a quick insight into the adaptability competency of personnel and recruits are therefore quite valuable for purposes of personnel planning and policy, the organization of work, and for education and training.

In the present study, we used such a tool developed for this study, the D-ADAPT (Venrooij, Oprins & Van den Bosch, 2015), to investigate how military and civilian personnel assess the adaptability demands of their jobs, and how they assess their own adaptability

Table 8. Multiple regression analysis predicting self-assessed competency in each of the six adaptability dimensions by cognitive flexibility, learning goal orientation, and three personality Traits, for the civilian sample.

Adaptability dimension	<i>B</i>	<i>SE</i>	β	<i>t</i>	<i>Sig</i>
Handling crisis situations					
Learning goal orientation	.03	.09	.02	0.31	.759
Conscientiousness	.22	.11	.16	10.95	.052
Neuroticism	−0.04	.07	−.05	−0.64	.524
Openness	−0.08	.09	−.07	−0.93	.351
Cognitive flexibility	.53	.14	.31	30.65	.000
Solving difficult problems					
Learning goal orientation	.10	.07	.10	10.50	.134
Conscientiousness	.13	.09	.11	10.55	.123
Neuroticism	−0.06	.05	−.07	−10.09	.276
Openness	.20	.07	.20	20.97	.003
Cognitive flexibility	.60	.11	.41	50.44	.000
Culturally demanding situations					
Learning goal orientation	−0.05	.12	−.03	−0.39	.695
Conscientiousness	−0.03	.15	−.01	−0.18	.860
Neuroticism	.00	.09	.00	−0.02	.981
Openness	.58	.11	.39	50.08	.000
Cognitive flexibility	.14	.19	.07	0.76	.447
Physically demanding circumstances					
Learning goal orientation	.10	.09	.09	10.14	.254
Conscientiousness	.17	.11	.14	10.57	.118
Neuroticism	−0.12	.07	−.15	−10.87	.063
Openness	−0.03	.09	−.02	−0.31	.756
Cognitive flexibility	.10	.14	.07	0.73	.467
Handling work stress					
Learning goal orientation	−0.09	.10	−.07	−0.95	.342
Conscientiousness	.22	.12	.17	10.91	.058
Neuroticism	−0.15	.07	−.17	−20.06	.041
Openness	.22	.09	.19	20.43	.016
Cognitive flexibility	.04	.15	.03	0.28	.780
Interpersonal interactions					
Learning goal orientation	.03	.07	.03	0.38	.702
Conscientiousness	.01	.09	.01	0.10	.924
Neuroticism	−0.04	.06	−.06	−0.77	.443
Openness	.16	.07	.18	20.29	.023
Cognitive flexibility	.27	.12	.21	20.31	.022

competency. In addition, we explored the relationships between certain personal characteristics and the various dimensions of adaptability competency, separately for military and civil employees.

Adaptability demands of jobs

All civil job types demanded similar levels of adaptability with respect to handling work stress and interpersonal interaction, but for all other dimensions, the required level of adaptability differed across job type. Figure 1 shows, for example, that jobs in the research-domain do not much rely on being able to handle crisis situations, but these jobs demand employees to be able to solve new and unfamiliar problems adaptively. Jobs that require relatively high levels of adaptability on all or most dimensions have been found in the servicing, pedagogical, medical, and military domains.

Within the latter group, the military, we investigated whether different patterns can be discerned among various military job types. Results, however, did not show different adaptability demands for the various

military job types, except for the dimension handling crisis situations. One explanation for the difference might be that the investigated set of military jobs is less diverse than the set of civilian jobs. Another possibility is that our job taxonomy did not reflect essential differences in adaptability demands within the military organization, although we have no reasons to believe that this is the case. Another explanation could be that the military population is more homogenous than the civilian population, possibly because it is a preselected group. Third, in the training of military personnel, adaptability is explicitly addressed, and they share a culture in which adaptability is perhaps more valued than in civilian professions. These factors may have caused biased ratings of the military participants, irrespective of their specific jobs. Fourth, it is also important to note that military personnel often change to other job types during their career, whereas civilians tend to continue working within one particular job type. These changes can have caused certain biases because they might have filled out the questionnaire with more job types in mind.

Adaptability competencies of military and civilian employees

Military participants evaluated themselves to be more competent than civilians did on nearly all adaptability dimensions, with the exception of the dimension of interpersonal interaction. This exception may be explained by the fact that both military and civilians usually work closely together with others. The proficiency to monitor, evaluate, and adjust the communication and coordination with others is equally important for both groups.

The higher self-rated adaptability competency by the military might be explained by the fact that military jobs impose higher adaptability demands. This assumption is in line with the literature (Bowden et al., 2003; Kozlowski & DeShon, 2005; Kozlowski et al., 2001; Pernin et al., 2013; Reed, 2012; Thompson, 2008; Tillson et al., 2005; Tucker & Gunther, 2009). The dynamically changing and high-risk environments of the military set high standards for military personnel. They have to be able to continuously monitor and evaluate the operational circumstances, and to decide whether or not to adjust or abandon initially selected task strategies (De Jong et al., 2014). The implications of the requirements of military jobs are consistent with the results found in this study. For example, being able to *handle crisis situations* and to *handle work stress*, which was rated notably high by military, is very important for

identifying and solving dangerous and unexpected conflict situations. In most civilian jobs, such dangerous and stressful situations hardly occur.

As current military missions are often staged in foreign and unfamiliar regions, the military have to be able to communicate with people from unfamiliar cultures, which may account for the results found on the dimension of culturally demanding situations. In most civilian jobs such circumstances seldom occur. A third characterization of military jobs is that personnel often has to work in physically demanding circumstances, accounting for our finding that military participants consider this adaptability dimension much more important than civilians do for their jobs. The military participants rated themselves higher on this adaptability dimension than civilians did.

An alternative explanation for the found differences between military and civilians is that they are caused by differences in self-efficacy (Baleghizadeh & Masoun, 2014; Luthans, Avey, Avolio, Norman, & Combs, 2006). *Self-efficacy* refers to one's believe in own competency. It may be that our military participants, overall, had a higher self-efficacy than our civilian participants. We do not have the data to test this assumption, but there are indications that this may be the case, as self-efficacy is one of the criteria that the military use in the selection of recruits.

Another factor in the design of our study that may have influenced our results is that participants filled out both the work-ADAPT and the self-ADAPT. The responses to the work-ADAPT and self-ADAPT may therefore be interconnected, and it is conceivable that this caused a bias in scores. An alternative approach that is most likely to yield more objective competency assessments is to involve supervisors or peers, rather than the participant himself, in the assessments of adaptability competency. Another possibility would be to double the number of participants per job type and have one random half fill out the work-ADAPT, and the other half the self-ADAPT. Unfortunately, it was impossible to implement these alternatives in the present study, but this could be part of future research.

Predictors of adaptability dimensions

The results showed different patterns in relationships between and within predictors and adaptability dimensions. We found both similarities and differences between the results within the military and the civilian samples. The intercorrelations showed that the adaptability dimensions were not highly correlated with each other, especially within the civilian sample. This strengthened the idea that adaptability is not a singular

construct but is multidimensional (Pulakos et al., 2000). The intercorrelations within the military sample were substantially higher. This could be explained by the fact that the military form a more homogenous group, having more similar jobs in comparison with civilians, as explained above. This has probably influenced their self-ratings on the various dimensions of adaptability competency. The variance within the military sample is less high than within the civilian sample.

In accordance with the literature, we found that the selected measures of personal characteristics predicted different dimensions of adaptability. This means that for certain adaptability dimensions, different personality traits are more important than for other dimensions. If these requirements were related to different job types, this would provide guidance for the selection and training of people for certain job types. Overall, cognitive flexibility has shown to be best predictor for especially the cognitive-related dimensions such as handling crisis situations and solving difficult problems within both the military and civilian sample. This shows that people who are flexible at reshaping their knowledge and responses (Martin & Rubin, 1995) are more likely to be adaptable in dealing with cognitively complex situations. The fact that cognitive flexibility also predicts interpersonal interaction is in line with the idea that the social environment plays a crucial role in being cognitively flexible and thus adaptive (Martin & Rubin, 1995). Interpersonal interaction often involves uncertainty and missing information. When interacting with another person, one has to make assumptions about what the other person knows and does not know; what the intentions might be, and how the other person wants this to achieve. Making such inferences requires the ability to reflect upon how someone else might view a situation, what strategies might serve the other person's goals, and so on. All of these are reflective cognitive abilities, hence the strong relationship between these dimensions. The results being comparable for military and civilians suggest that cognitive flexibility is an important predictor for adaptability in both job types. These findings support the theoretical notion and earlier findings in literature that cognitive flexibility is a rather broad construct which is strongly related to adaptability in general (Barak & Levenberg, 2016; Cañas et al., 2005).

We found that learning goal orientation is not a good predictor of adaptability at all. Civilian and military employees agree here. In contrast with other studies (Kozlowski et al., 2001), learning goal orientation only predicted solving difficult problems within the military sample. This relationship was not present within the civilian sample. It is likely that participants who have a mastery goal orientation (Button et al., 1996) are more inclined to approach unfamiliar

situations with the intention to learn, and that this strategy is helpful to adapt to these conditions. However, it can be argued that other dimensions of adaptability (e.g., interpersonal interaction, physically demanding situations) rely much less on the property of goal orientation, and thus are less influenced by this characteristic.

With respect to the personality traits measured in this study, it was found that employees who are less neurotic and more open to new experiences are more likely to be adaptive. Neuroticism predicts handling crisis situations and physically demanding circumstances, whereas openness only predicts culturally demanding situations. These findings on the relationships between personality traits and adaptability are consistent with earlier studies (Lepine et al., 2000; Pulakos et al., 2002; Thoresen et al., 2004; Zorzie, 2012). However, in contrast with these studies, we did not find any relationship between conscientiousness and the adaptability dimensions. We expected openness to influence personal interactions as well, but we did not find this. A practical implication of this finding might be that especially conscientiousness is not as relevant as the other personality traits to include as a selection measure for recruiting adaptive military personnel. In contrast, within the civilian sample only openness turned out to be a really good predictor for almost all adaptability dimensions. The other personality traits, conscientiousness and neuroticism, did not predict any adaptability dimension. This suggests that certain personality traits are more important to military jobs (cf. neuroticism) and others are more relevant to civilian jobs (cf. openness). This supports the earlier discussed finding that job types could be really different in their requirements on individual competency.

In conclusion, the D-ADAPT has proven to be a helpful tool in identifying what a job requires in terms of adaptability, and how competent individuals consider themselves on the various adaptability dimensions. Organizations may use the results to optimize the allocation of personnel (e.g., which person is the right one for the job?); for the composing of teams (e.g., do the different team members complement each other?); and for the specification of personalized training programs (e.g., which adaptive competencies does this individual need to improve?). In this way, the results of our study have practical implications for selecting and training suitable personnel for certain jobs. Theoretically, the study contributes to knowledge on the multidimensional construct of adaptability and its predictors: Different adaptability dimensions are related to different job types and personal characteristics.

Limitations and future research

The study has a few limitations and challenges for future research. One direction for further research is to develop training programs that effectively target adaptability. For example, a recent study investigated whether and how a contextually-rich game-based training can be used to improve adaptability (Venrooij, Oprins & Van den Bosch, 2015). A first limitation of this study is the lack of demographic data. The military organization involved in the study considered the collection of personal and demographic data as contradicting with recently enforced privacy legislation. It was feared that information on age, gender, experience, and level of education would enable the identification of specific individuals within the military sample. We therefore refrained from collecting these data. However, the differences that we found between the civil and military samples could theoretically be explained by these generic characteristics on demographics. Therefore we recommend to include these generic influencing factors in a follow-up study. In addition, it would be interesting to counterbalance the type of jobs as well as demographics in a next comparative study between military and civilian. This would provide more certainty on the relationship between job type and adaptability demands, independent of possible military-specific factors such as culture, selection, and training.

Second, our study focuses on predictor measures for adaptability that are personality-related, such as the personality traits adopted from the big five and cognitive flexibility. These properties can be quickly and easily measured with questionnaires. Cognitive abilities have been shown to be also good predictors for adaptability (e.g., Pulakos et al., 2002; Ployhart & Bliese, 2006; Thoresen et al., 2014; Zorzie, 2012), but obtaining measures of cognitive abilities generally requires much time and were therefore did not included them in this study. An objective of future research may be to explore the relationship between cognitive ability measures and other predictors. A cognitive test battery should then preferably be used because a questionnaire is not suitable for measuring cognitive abilities or intelligence.

Third, this study focuses on adaptability competency of individual employees without measuring the effect on job outcomes such as decision making, performance, resilience, satisfaction or engagement. In a military context, it is argued that adaptability competency is important to achieve a high level of readiness during operational missions (Dandeker, 2006; Dekkers et al., 2016), which makes it worthwhile to invest in

individual adaptability competency by selection and training. However, the effect of adaptability competency on the outcomes in work settings has not been researched yet. Future research should aim to measure the effects of adaptability competency of individuals on performance and other job outcomes (e.g., decision making, satisfaction, engagement) as well, preferably covering a large range of job types.

Notes

1. <https://www.bls.gov/soc/>.
2. All measures included in the study are in cursive to be maximally clear in the text.

Disclosure statement

No potential conflict of interest was reported by the authors.

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Appendix

Items of the Dutch Adaptability Dimensions and Performance Test.

Adaptability dimension	Item
CPS1	Analyzing an unfamiliar problem
CPS2	Considering a complex problem from multiple perspectives
CPS4	Adapt your plan to solve a problem
CPS5	Comparing different solutions to the same complex problem
CPS6	Adopt [choose for] an unusual solution to a problem
CRS1	Getting an overview of a crisis situation to make proper decision
CRS2	Monitoring how an emergency situation unfolds to adapt your behavior this situation
CRS3	Thinking about how to solve a threatening situation
CRS5	To take action at the right moment when a situation turns dangerous
CRS8	To set new priorities when a crisis situation becomes too dangerous
CUS1	To be open how people from a different cultural background behave
CUS2	To inquire [obtain information] about rules, values and habits of another culture
CUS5	To use your knowledge of a culture to predict the behavior of people
CUS6	Considering how to behave in an unfamiliar culture
CUS8	Adjust your goals to accommodate people from a different culture
IPS2	Observe the behavior of others to get to know them
IPS3	Taking the possible reactions of other into account
IPS4	To develop new ways for cooperation
IPS5	Changing your mind because of other team member's ideas
IPS7	To tailor your decisions to other's wishes
STS1	Recognizing signs of stress in complicated situations
STS2	Determining why you are feeling stressed
STS3	Predicting how stress will affect your quality of work
STS4	To think how you can prepare yourself for stress
STS6	Choose between different options to reduce stress
ZFO1	Recognize when physical circumstances make your job harder to carry out
ZFO11	Acknowledging your limits in physically demanding situations
ZFO3	To think the physical demands when taking up a task
ZFO5	Decide how to keep performing optimally under heavy physical circumstances
ZFO6	To think of ways how to persevere under demanding physical circumstances
ZFO9	To adjust your plan to expected changes in the physical task environment

Note. Original items were in Dutch; below is the author's English translation.

CPS = solving difficult problems; CRS = handling crisis situations; CUS = culturally demanding situations; IPS = interpersonal interaction; STS = handling work stress; ZFO = physically demanding circumstances.