

Demanding resources: Converging characteristics of challenge and resource

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Abstract

568 workers rated job characteristics in terms of relevance as well as perceptions as challenges, hindrances and resources. We find strong associations between characteristics such that what is viewed as a “resource” is also very often considered a “challenge”. This agreement was moderated by the nature of the job characteristic.

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An abundance of research applying the job demands-resources model (Demerouti et al., 2001) and job demands-resources theory (Bakker & Demerouti, 2017) underscores the importance of job characteristics on the experience of work. Resources are defined as physical, psychological, social, or organizational aspects of the job that may help an employee achieve work goals, reduce job demands, or promote personal growth and development (Demerouti et al., 2001). Demands, on the other hand, include components of a job that require sustained effort, and as such, produce psychological or physiological strain (e.g., high work pressure, Demerouti et al., 2001). These two categories of outcomes (e.g., “good” and “bad”) are thought to occur via one of two different mechanisms: motivational (resulting from resources) or health impairment (resulting from demands, Bakker & Demerouti, 2014). Much of our existing research on the JD-R assumes that certain characteristics (for example, autonomy) are resources and others (for example, time constraints) are generally considered demands. This study searches instead for circumstances that provide exception to this mutually exclusive dichotomy of job characteristics.

Could a Work Demand be Appraised “Positively”? The Challenge-Hindrance Framework

Although the word “stress” often carries a negative connotation, the “father” of the current concept, Selye (1936), conceptualized stress much less perjoratively - rather thinking of it as a *response to change*. For instance, consider the different reactions two different employees may have to being nominated to give a speech at an upcoming company event. One may appraise the nomination as a negative stressor. However, another employee may appraise the nomination to do so as an opportunity to share their experiences with more of their coworkers, or one in which they may receive recognition they

have desired. Selye the physician would likely have labeled the two responses as subjective manifestations of “Distress”, and “Eustress” (Selye, 1974). In modern I-O Psychology parlance (and more consistent with the JD-R framework), the two workers would both be characterized as appraising the speaking opportunity as a job demand, but one would be appraising the demand as a *challenge* while the other would appraise the demand as a *hindrance* (Cavanaugh et al., 2000). According to Cavanaugh et al. (2000), challenge demands promote mastery, personal growth, and future gains. Hindrance demands, in contrast, inhibit growth, learning and goal achievement. Perhaps not surprisingly, challenge demands are typically associated with positive outcomes, whereas hindrance demands are associated with more negative outcomes (e.g., Cavanaugh et al., 2000).

Prior to proposing specific predictions regarding the current SIOP presentation, the empirical evidence on challenge and hindrance demands is very briefly shared below. To begin, the first logical question is whether employees actually distinguish between challenges and hindrances, and research suggests that they can and do. For example, Bakker and Sanz-Vergel (2013) found that perceived work pressure can be classified as a hindrance demand, while the requirement to express emotions is a challenge demand. Webster et al. (2011) also considered three common work characteristics including workload, role ambiguity, and role conflict. Interestingly, they found that while each could be identified *primarily* as a challenge or hindrance, employees could also appraise that a characteristic is simultaneously both a challenge and hindrance.

Although it is cleaner to be able to categorize job characteristics as *either* a demand or a resource, the above research suggests that an individual’s (perhaps unique) appraisal is at least occasionally an important consideration. It is quite possible that one person experiences high work pressure (commonly cited as a demand in the literature) as a hindrance stressor and thus experiences strain, and another thrives in a fast-paced pressured role and would thus find the environment motivating.

Current Study and Hypotheses

We explored the extent to which perceptions of job characteristics converge upon being uniquely or concurrently experienced as resources and demands (in the form of challenges and hindrances). Our supposition is that respondents may consider the same objective job characteristic to be both challenging and resourceful - if not at the same moment, at least at different points in time or under differing circumstances.

Value of consulting O*Net. The Occupational Information Network (O*NET; onetonline.org) contains a fairly comprehensive description of occupations (Peterson et al., 2001). This widely accessed database houses hundreds of standardized and occupation-specific descriptors for the majority of occupations within the United States, and these descriptions are frequently updated. These data, and the tools provided for public consumption on the website (e.g., Career Exploration Tools, “My Next Move”, Toolkit for Business) are frequently used by counselors, students, human resources departments, and researchers to assist interested or curious job-seekers discover the nature of work as well as skills and training typically required for different occupations. It is also often useful to employers by providing them with information that may be helpful in a job analysis context.

We asked our respondents to select job characteristics that were relevant to them from the broader comprehensive O*Net list. We then asked these individuals to also rate those (relevant) characteristics in terms of their status as hindrances, challenges, and resources. Utilizing the job demands-resources theory and the challenge-hindrance framework, we propose that job characteristics appraised as “challenge demands” (i.e., promote mastery, personal growth, and future gains) may also be viewed as job resources.

Hypothesis 1: Characteristics perceived as challenges are also commonly viewed as resources.

Although the same job characteristic may be perceived as both a challenge and a

resource, it is also likely that some characteristics are less likely to be viewed as mutually complementary as others. For example, a physically strenuous job requirement such as “carrying heavy objects” would be less likely to be viewed both as a challenge and a resource whereas a structural characteristic such as “negotiating work schedules” may very well be viewed (likely in different circumstances) to be both a control-oriented resource as well as a challenge. O*Net has different levels of abstraction with regard to the nature of job characteristic. We will be exploring a mid-level abstraction with seven different characteristic “scales”.

Hypothesis 2: The association between challenging and resourceful characteristics is moderated by type of characteristic.

Method

We evaluate agreement across perceptions of job characteristics regarding their characterization as resource, challenge, and hindrance (Bakker & Demerouti, 2017; Bakker et al., 2003; Demerouti et al., 2001). To capture an effectively exhaustive list of characteristics that apply to, theoretically, *every* possible job, we consult the unifying framework of O*Net.

Materials

Our survey was informed by 98 statements taken from job characteristic descriptors located within O*Net’s classification of “work activities”: 1) Information Input (5 statements), 2) Interacting with Others (17 statements), 3) Mental Processes (10 statements), and 4) Work Output (9 statements) and “work context” groupings: 1) Interpersonal Relationships (14 statements), 2) Physical Work Conditions (30 statements), and 3) Structural Job Characteristics (13 statements).

The O*Net descriptors are written in a similar manner to a task statement presented

within a job analysis, but the level of abstraction is closer to “responsibility” than task. For example, the descriptor for “level of competition”, which is an element of the “structural job characteristics” grouping, is *...to what extent does this job require the worker to compete or to be aware of competitive pressures?* Other than minor grammatical editing (for example, changing “the worker” to “you”), we retained the O*Net wording for our item stems. We also retained O*Net’s response scales, several of which were semantically unique across items, but all shared the same 5-point scale. It would likely NOT be considered controversial to referred to these as “effectively” Likert-type response scales.

Subsequent to providing ratings of whether or not each of the 98 O*Net characteristics were relevant for the respondent’s work, each respondent who agreed that an element had at least some relevance to their job was then also asked to rate that element in terms of, 1) . . . this aspect of your job is a resource that can be functional in achieving work goals, reduce job demands, or stimulate personal growth/development, 2) . . . this aspect of your job is a challenge that can promote mastery, personal growth, or future gains, and 3) . . . this aspect of your job is a hindrance that can inhibit personal growth, learning, and work goal attainment. The total number of items on the survey was less than 392 (98 characteristics x 4 administrations) because we did not ask for demand and resource evaluations for 14 O*Net characteristics that we projected would have very low frequency of endorsement across respondents (one excluded characteristic, for example, was *...the extent to which the worker is exposed to radiation on the job*).

Participants

Eligibility requirements included being 18 or older and holding either a full- or part-time job. Participants were asked to think about their primary job while answering the survey. We sampled from a Prolific panel, resulting in 785 individuals who initially accessed the survey link. Of those, 112 indicated that they were not interested, had more than 200 missing responses, or had 20 or more identical consecutive sequential responses

(Yentes & Wilhelm, 2021). Additional screening using four embedded attention checks resulted in the retention of 568 respondents. A total of 13.57% had been in their job less than 6 months, 19.20% between 6 months and a year, 49.12% between one and five years, 13.27% between 5 and 10 years, and 4.87% more than 10 years. Reported ages ranged from 18 to 65 with an average of 28.18 years old ($SD = 7.53$). Gender was captured via a free-field gender identity category, although the sample predominantly self-identified as female (52.6%) or male (46.8%). Participants were compensated for their participation in this study in the amount of six dollars through Prolific.

Results

All analyses are focused on characteristics of work that were rated as being “relevant” to the respondents’ job. Upon confirming that a work characteristic was relevant, respondents then also rated the extent to which that characteristic was perceived as a resource, challenge, and hindrance.

Resource, Challenge, and Hindrance Associations

Hypothesis 1 predicted a positive association between total resources and total challenge demands. Table 1 shows a very high association between resources and challenges ($r = .86$). These associations, however, are only capturing the relationships between these demands and resources in *sheer volume*. That is, table 1 operationalized each variable as the sheer number of resources, hindrances, or challenges that a respondent indicated were present within their job. This correlational analysis simply implies that workers who experience more resources also perceive greater challenges. The associations between resources and hindrances ($r = .23$) and challenges and hindrances ($r = .22$) were also significantly positive with moderate magnitude associations, suggesting that some of this “sheer volume” may be capturing job complexity (that is, the more complex the job, the more characteristics are relevant, and therefore the more likely it is to have *more* challenges

as well as *more* hindrances as well as *more* resources). Although we did not address job complexity as a moderator in the current paper, we do plan to do so in future investigations. Also, take note of the average numbers of resources, challenges, and hindrances cited by our sample, where these respondents generally experienced fewer hindrances in their jobs ($M = 13.09$) than both resources and challenges.

Convergence (same characteristic).

We next looked for convergence of perception at the level of each individual job characteristic. Here, we calculated the *percent of affirmative correspondence* between individual characteristic perceptions. That is, a respondent needed to agree that *...being in contact with others* was both a resource as well as a challenge in order to be implicated as affirmatively agreeing. We did this for each of the 84 individual characteristics that were rated as a resource, challenge, or demand and then computed an aggregate level of affirmative correspondence for each person. Figure 1 presents the results of these correspondences, showing that there was not much mutual agreement regarding characteristics being viewed as both hindrances and resources ($M = 0.14$) or as challenges and hindrances ($M = 0.14$). However, when a characteristic was viewed a resource, it was more likely to also be perceived as a challenge (although the correspondence also exhibited quite a bit of variability; $M = 0.51$, $sd = 0.21$).

Moderating effects. Figure 2 explores the possibility of moderation by *type of characteristic rated* for the resource-challenge convergence. Here we categorized each characteristic by its O*Net “scale” (one of seven), and the graph shows greater consistency across certain characteristics (for example, *Mental Processes* or *Interacting with Others*) and less convergence across other *types* of job activities (for example, *Physical* characteristics). A repeated-measures ANOVA retaining these scales as 7 different levels of a within-subjects’ independent variables yielded a treatment effect of $F_{(6,3,402)} = 613.5$, $p < .001$ (the subjects’ effect was $F_{(567,3402)} = 6.13$, $p < .001$).

As can be seen in Figure 3, the moderation seen across O*Net dimension was not paralleled across *job classification*. Here, there was wide variability in convergence, regardless of *type* of job. The omnibus ANOVA did breach statistical significance ($F_{(7,560)} = 2.06, p = 0.05$), however, the practical effect was very small ($\eta^2 = 0.03$). The only contrast approaching statistical significance via Tukey's HSD specification ($p = .09$) was the contrast between Physical Labor ($M = 0.49$) and Business and Financial Operations ($M = 0.58$). Additionally, a Levene's test for homogeneity of variance was non-significant (Levene's = 0.65, $p = 0.71$). [should be .6539 and .7112]

Maybe do third moderator. We also have ratings of "...the extent to which this characteristic is present in your job". Currently we're just taking a binary yes/no approach, but it does make sense to look for moderation based on *the degree to which the characteristic is present*. This is probably a better/more appropriate moderator than either of the above two...

Discussion

The major goal of this paper was to further explore the relationships among perceptions of job characteristics as challenge demands, hindrance demands, and resources. Our findings perhaps most notably highlight the importance of dissociating the *nature* of job demands. Similar to the eustress/distress distinction (e.g., Selye, 1974), it would seem as though demands should perhaps be thought of in a valenced manner (e.g., is it a "good" demand or a "bad" demand). We did not probe for dependent variable associations, however, Cavanaugh et al. (2000) found that challenge demands were positively related to job satisfaction and negatively related to job search behaviors, while hindrance demands demonstrated the opposite patterns in a sample of managers. We also have some evidence that challenge-hindrance appraisals are related to engagement in the expected direction whereby hindrance appraisals are negatively associated with engagement and challenge appraisals are positively associated with engagement (Crawford et al. (2010)). Podsakoff et

al. (2007)'s meta-analysis also found that challenge demands were positively related to job satisfaction and organizational commitment and negatively related to both turnover intentions and actual turnover, while hindrance demands again produced the opposite patterns of relationship. Although we did not probe for outcome associations, the current study does suggest that hindrance demands also operate in a manner different than challenge demands with regard to their association with resource appraisals.

In terms of convergence of resource and challenge appraisals, there was quite a bit of variability (e.g., Figure 1), but that variability was partially explained by the nature of the characteristic being evaluated (e.g., Figure 2). Physical job characteristics such as, for example, the amount of “time spent bending or twisting the body” may be much more likely to be appraised as a challenging demand (but not a resource). Other *types* of job requirements, however, such as a mental process like, “scheduling work and activities” might reasonably be expected to exhibit greater convergence. We suspect that there are other moderators that help explain this association/ disassociation between challenges and resources, and would like to incorporate variables such as a respondents' personality in future investigations.

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Table 1

*Resource, challenge, and hindrance correlations
(counts data).*

	1	2	<i>M</i>	<i>SD</i>
1. resource	-		36.02	13.26
2. hindrance	.23***	-	13.09	13.62
3. challenge	.86***	.22***	35.64	13.63

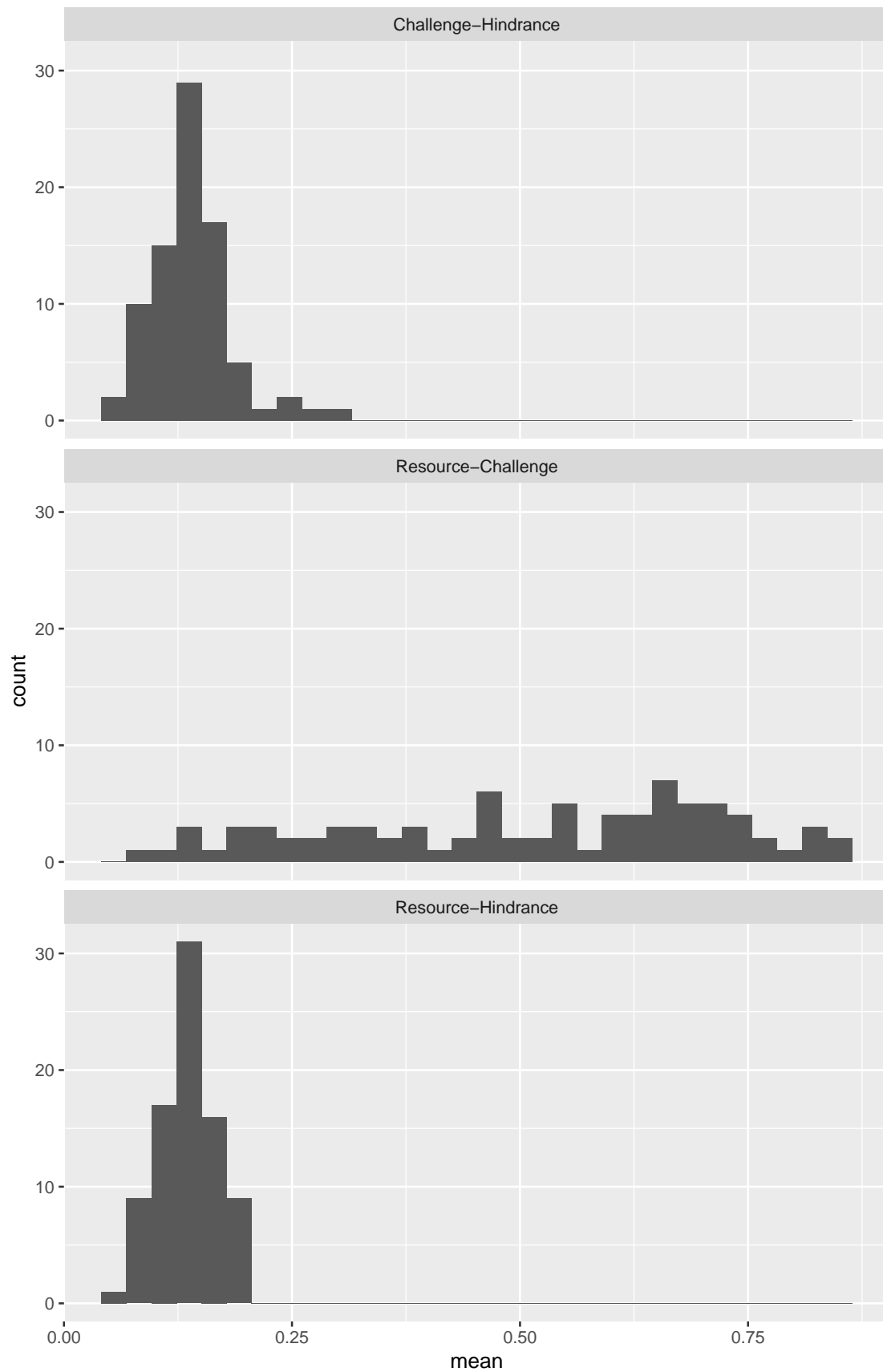


Figure 1. Percent convergence (characteristic rated consistently as, for example, both a resource and a hindrance).

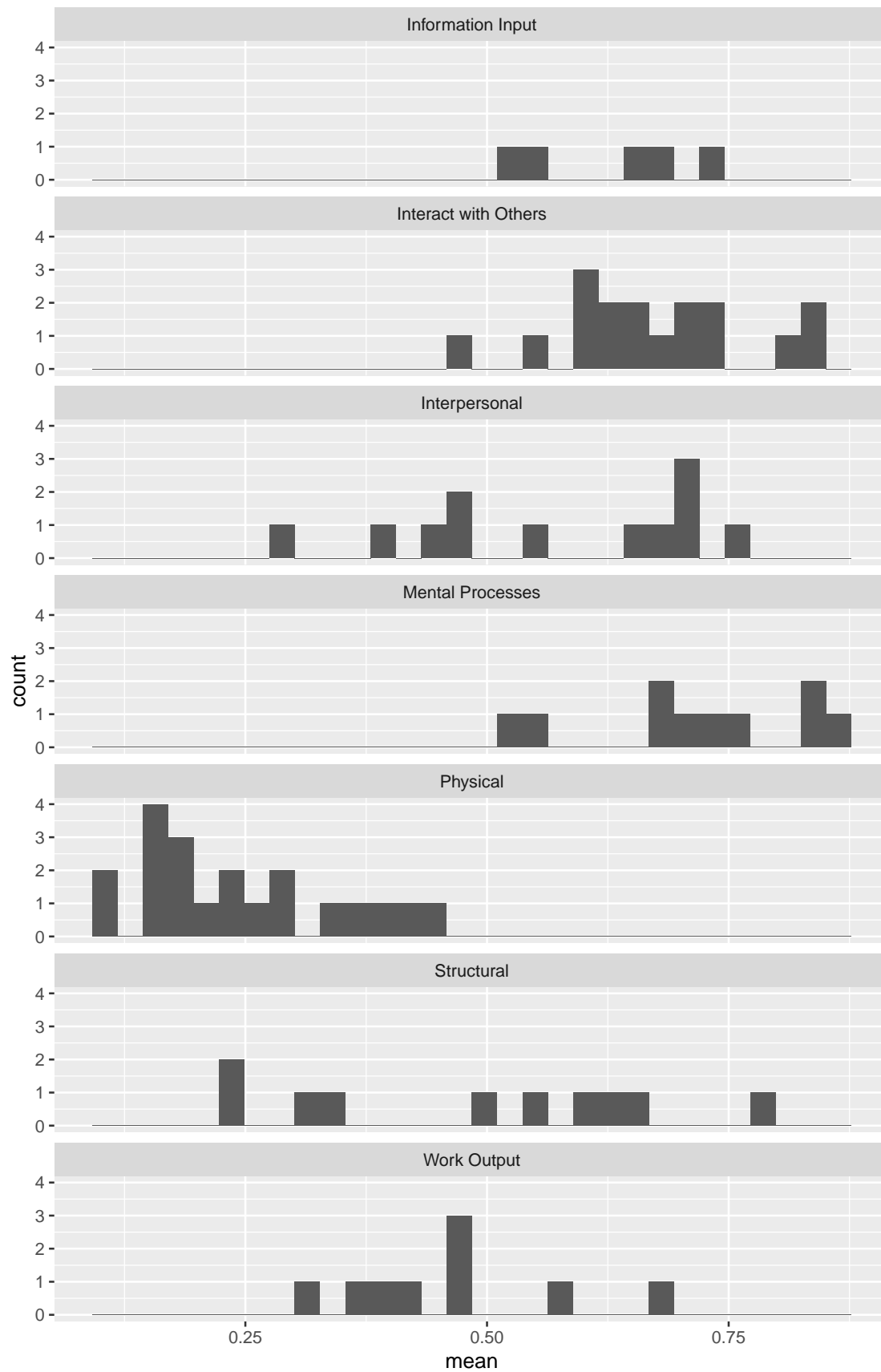


Figure 2. Resource and challenge agreement across ONet characteristic groupings (e.g., scales).

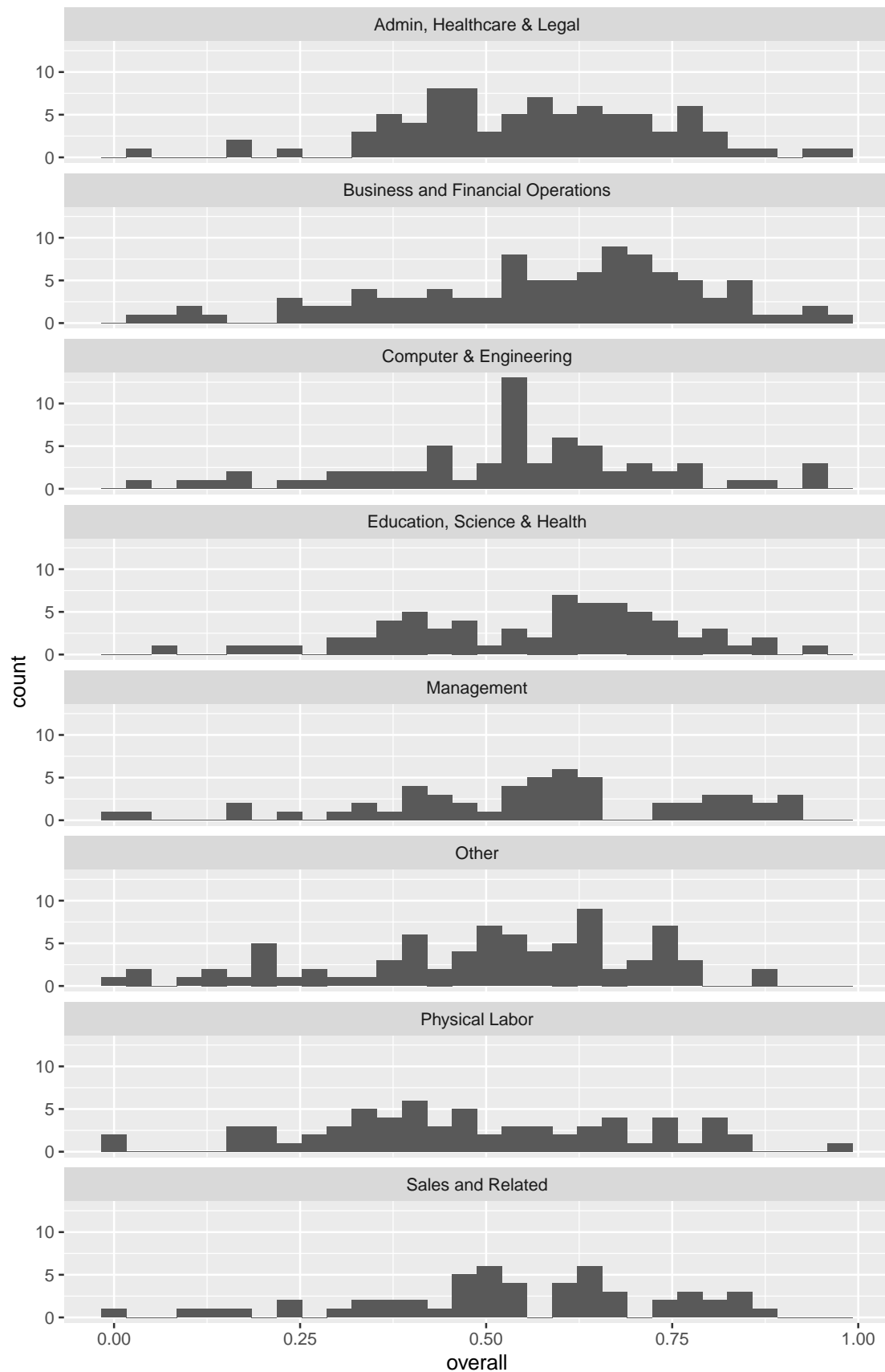


Figure 3. Percent agreement (resource and challenge) across O*Net occupational categories (previous was across 84 O*Net items - this is across 568 individual workers).