Demanding Resources: Converging Perceptions of Challenge and Resource Characteristics

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Abstract

Using the Challenge-Hindrance Framework, 2 research questions were examined: are jobs with many resources also perceived to have many challenges, and 2) could that association be moderated by kind of job characteristic. A survey of 568 workers rated job characteristics in terms of relevance as well as perceptions as challenges, hindrances and resources using the common O*NET classification of work activities and context.The findings point to high association between the number of resources and challenge demands employees experience, reasonable correspondence or agreement that a characteristic is a resource *and* challenge, and differences in this association by job characteristic category. More variability was observed when exploring associations between resources and hindrance stressors, and challenge/hindrance stressors. **WORD LIMITS: Title (85 characters); Abstract (600 characters); Word limit (3,000; exclude tables, figures, references)**

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The Occupational Information Network (O*NET) contains a large yet non-exhaustive description of occupations (Peterson et al., 2001) which subject matter experts inform via surveys. In the current study, we retain a set of O*NET job context and activity statements to explore questions about how people perceive resources, challenges, and hindrances within their jobs.[1] Here, we focus broadly on two research questions: 1) do challenging jobs tend to be resource-rich or -poor?, and 2) is that association be moderated by job characteristic (e.g., social vs. physical aspects of work)?

Although the word *stress* often carries a negative connotation, the "father" of the current concept, Selye (1936), conceptualized the construct much less pejoratively - simply presenting it as a *response to change*. Consider, for example, the responses two different employees may have to being nominated to give a presentation at an upcoming company event. One may appraise the nomination as a frightful task whereas another may appraise it as an exciting opportunity to share their experiences with their coworkers. Selye the physician would likely label the two responses as subjective manifestations of "distress" and "eustress" (Selye, 1974).

Not all Stressors are Equal: The Challenge-hindrance Framework

In modern I-O psychology parlance, and more consistent with the job demands-resources model and job demands-resources theory (e.g., Bakker & Demerouti, 2017; Demerouti et al., 2001), the two workers would both be characterized as appraising the speaking opportunity as a job demand, which would be *stressful*. However, Cavanaugh et al. (2000)'s challenge-hindrance stressor framework suggests that the way we understand

[1] There are a number of advantages to using this standard set of statements, but the primary one here lies in our ability to consider a wide range of job characteristics, with a focus on individual perceptions of each rather than limiting ourselves to a more generic set of demands or those of a limited scope.

reactions to stressors requires consideration of how people *feel* about a given stressor. One of our above employees would be appraising the demand as a *challenge* while the other would appraise the demand as a *hindrance* (Cavanaugh et al., 2000). Horan et al. (2020) state that "…stressors are only challenge or hindrance stressors to the extent that they are perceived as such by employees" (p. 3). According to Cavanaugh et al. (2000), challenge demands promote mastery, personal growth, and future gains - these should lead to coping strategies that facilitate achievement and motivation (e.g., Kim & Beehr, 2020). Hindrance demands (e.g., role conflict, workplace politics), 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).

LePine (2022) explains the mechanisms by which demands are related to these differential positive and negative outcomes. Similar to the job-demands resources theory (Bakker & Demerouti, 2017), challenge and hindrance demands elicit two different paths or processes. Challenge stressors typically result in a challenge appraisal, and engagement is likely to happen as a result. Of note, however, this energy may be depleted eventually, leading to strain. Hindrance stressors elicit a different process. Disengagement is likely to result from a hindrance appraisal, which in contrast, negatively impacts motivation, performance, growth and wellbeing. This is a result of depleted resources via frustrations and other affectively negative reactions (LePine, 2022).

Recently, Horan et al. (2020), LePine (2022), and Mazzola and Disselhorst (2019) have all called out the need for additional research to incorporate the appraisal process into the challenge-hindrance stressor framework. In the current study, we build on the work of this growing number of researchers who argue that the characteristics of work may be appraised simultaneously as resources *and* demands (Webster et al., 2011).

Current Study and Research Questions

At the broadest level, we can question whether employees actually distinguish between challenges and hindrances as the theory describes. Research suggests that people can and do. For example, Bakker and Sanz-Vergel (2013) found that work pressure is 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. Here we note that this list of demands (workload, role ambiguity, and role conflict) is quite narrow.

Using a very large set of O*NET job characteristics, we explore whether challenges (positive stressors per the definition above) might actually be simultaneously viewed as resources. Per the job demands-resources theory (Bakker & Demerouti, 2017) 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). It stands to reason that some challenging demands may also be appraised as resources.

RQ1: Are challenging demands also appraised as resources?

Although we argue that 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 characteristics. We will be exploring a mid-level

abstraction with seven different characteristic scales.

RQ2: Is the association between resource and challenge characteristics 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.

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%).

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 *How often do you have to perform public speaking in this job??* Other than minor grammatical editing (for example, changing "the worker" to "you" where applicable), 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.

Procedure

Respondents were recruited through Prolific. After providing consent, respondents provided ratings of whether or not each of the 98 O*NET characteristics were relevant for the respondent's primary work role. Subsequently, 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 perception of resource, challenge, and hindrance. The total number of items on the survey was less than 392 (98 characteristics x 4 administrations - the first for relevance and the remaining 3 for resources, challenges, and hindrances) 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*). Furthermore, not every respondent indicated that the same characteristics were relevant to them. Therefore, each respondent had a unique set of administered items. 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' primary job. Upon confirming that a work characteristic was relevant, respondents then also rated the extent to which that characteristic was perceived as a resources, challenge, and hindrance.

Resource, Challenge, and Hindrance Associations

Research Question 1 explored whether challenging demands may also be commonly appraised as resources. The results show that the total number of undifferentiated challenges and resources are positively related. In fact, table 1 shows a very high association between resources and challenges ($r = .86$). This association, however, only captures the relationship 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 *does* imply that workers who experience more resources also perceive greater challenges. Although not explicitly part of the above research question, we also explored the associations between resources and hindrances ($r = .23$) and challenges and hindrances ($r = .22$), which were also significantly positive with moderate in magnitude, 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 ($M = 36.02$) and challenges ($M = 35.64$).

We further explored whether the mean number of resources, challenge- and hindrance demands were signficantly different from one another. Mirroring the results above, a paired-samples t-test between mean number of resources and challenges suggests that respondents did not experience more resources than challenges, $t(567), = 1.29$, $p = .198$, 95% CI = [-0.20, 0.96], $d = 0.03$. However, there was a significant difference between mean number of resources and hindrances, suggesting respondents experienced more resources than hindrances, $t(567), = 32.67$, $p < .001$, 95% CI = [21.55, 24.31], $d = 1.71$, and between mean number of challenges and hindrances suggests that respondents experienced more challenges than hindrances, $t(567), = -31.58$, $p < .001$, 95% CI = [-23.95, -21.15], $d = 1.65$. In sum, these findings highlight a pattern in which those who perceive or experience challenges in their work also perceive more resources, the implications of which will be explored further in the discussion.

Correspondence between Individual Job Characteristic Perceptions

While interesting, we note above that the initial analyses explore this question through a very broad "sheer volume" lens. 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; $M = 0.51$, $SD = 0.21$).

Is the association between resource and challenge characteristics moderated by type of characteristic?

Figure 2 explores the possibility of moderation by *type of characteristic rated* for the resource-challenge convergence (RQ2). 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 $F_{(6,3,402)} = 613.5$, $p < .001$, $\eta_p^2 = 0.21$ (the subjects' effect was $F_{(567,3402)} = 6.13$, $p < .001$). The only contrast not broaching statistical significance via Bonferonni-corrected pairwise t-tests was Work Output vs. Structural job characteristics (t = -1.10). The largest contrasts were Physical work conditions vs. Structural job characteristics ($t = 25.14$), Interpersonal relationships (t = -29.25), Mental processes (t = -33.84), and Interacting with others (t = -35.60)

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 suggest that there is an association between the number of resources and challenges employees perceive, and that this association does appear to be moderated by

type of job characteristic. The results highlight the importance of dissociating the *nature* of job demands, as we did not see the same patterns across challenge and hindrance 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). Distinguishing between different kinds of work demands has implications for not only the employees themselves, but also teams they may be a part of, managers and the like. This is because demands appraised as a challenge promote mastery, personal growth, and future gains. Moreover, it was more likely that employees would also perceive these characteristics as *resources* within their jobs.

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.

Limitations & Future Directions

The findings above point to a number of additional avenues for this line of research. While our study focused on activity and content O*NET statements, we were practically limited in the number of items that could be administered. As such, it would be of value to explore other, additional job characteristics, particularly in the relational realm (e.g., the "human" resources that are a major component of most work such as interacting with

coworkers, one's relationship with a supervisor). Another important direction to consider will be that of job type. We explored one potential moderator - that of job characteristic category, but it is also quite possible that those in certain industries experience some job characteristics with more frequency and would naturally have more resources/challenges, for instance. Individual differences in person-job fit may also prove to be a useful addition, as would outcomes associated with resources and demands at work (e.g., job satisfaction, engagement, intent to turnover).

Conclusion

This study contributes to our understanding of the experience of different characteristics of work using the common O*NET classification of work activities and context. The findings point to high association between the number of resources and challenge demands employees experience, reasonable correspondence or agreement that a characteristic is a resource *and* challenge, and differences in this association by job characteristic category. More variability was observed when exploring associations between resources and hindrance stressors, and challenge/hindrance stressors. The results speak strongly to the importance of perceptions of resources and demands at work given existing literature on the outcomes associated with such appraisals.

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Table 1

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

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

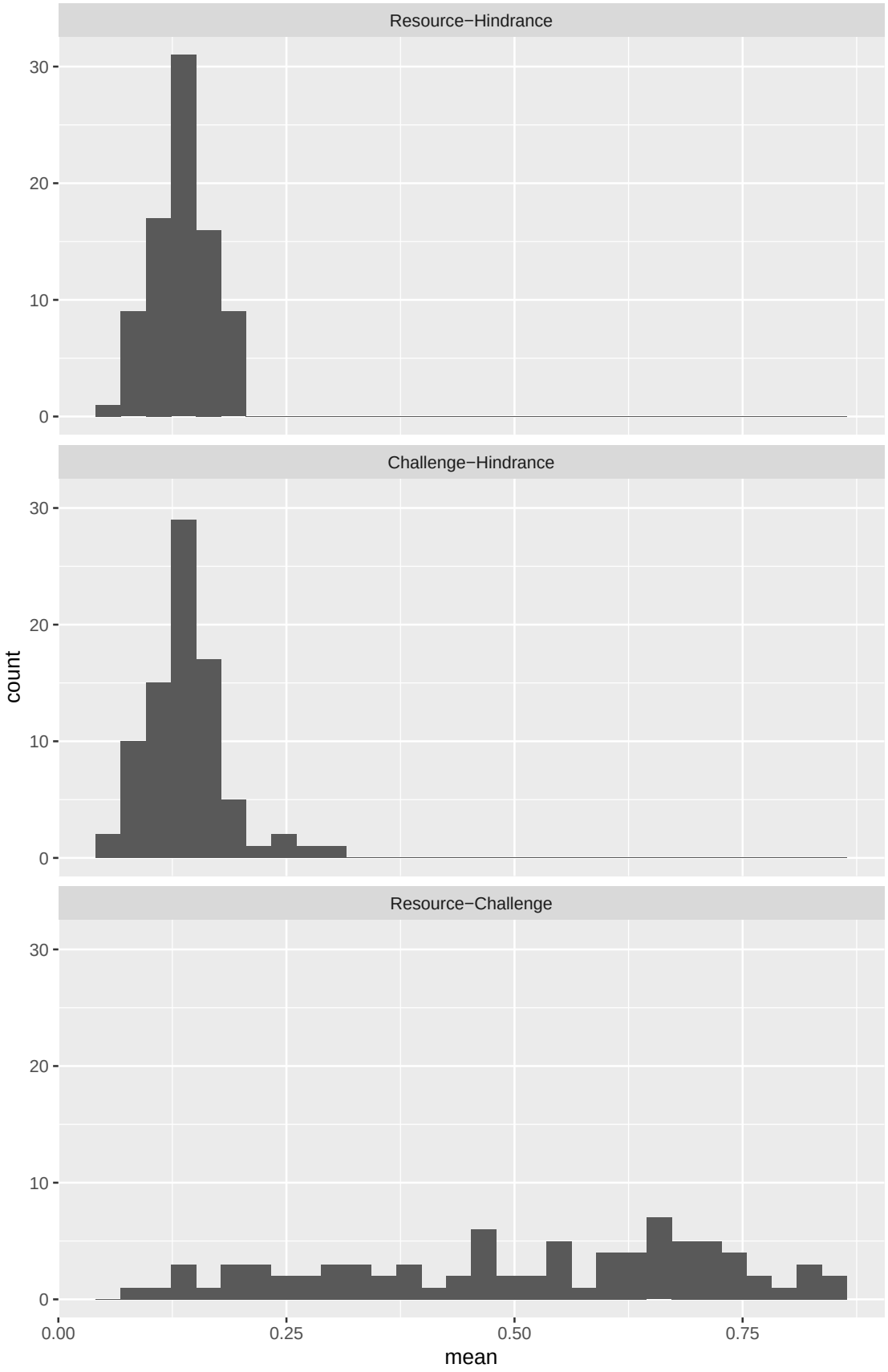

Figure 1. Percent convergence (characteristic rated consistently as, for example, both a resource and a hindrance).

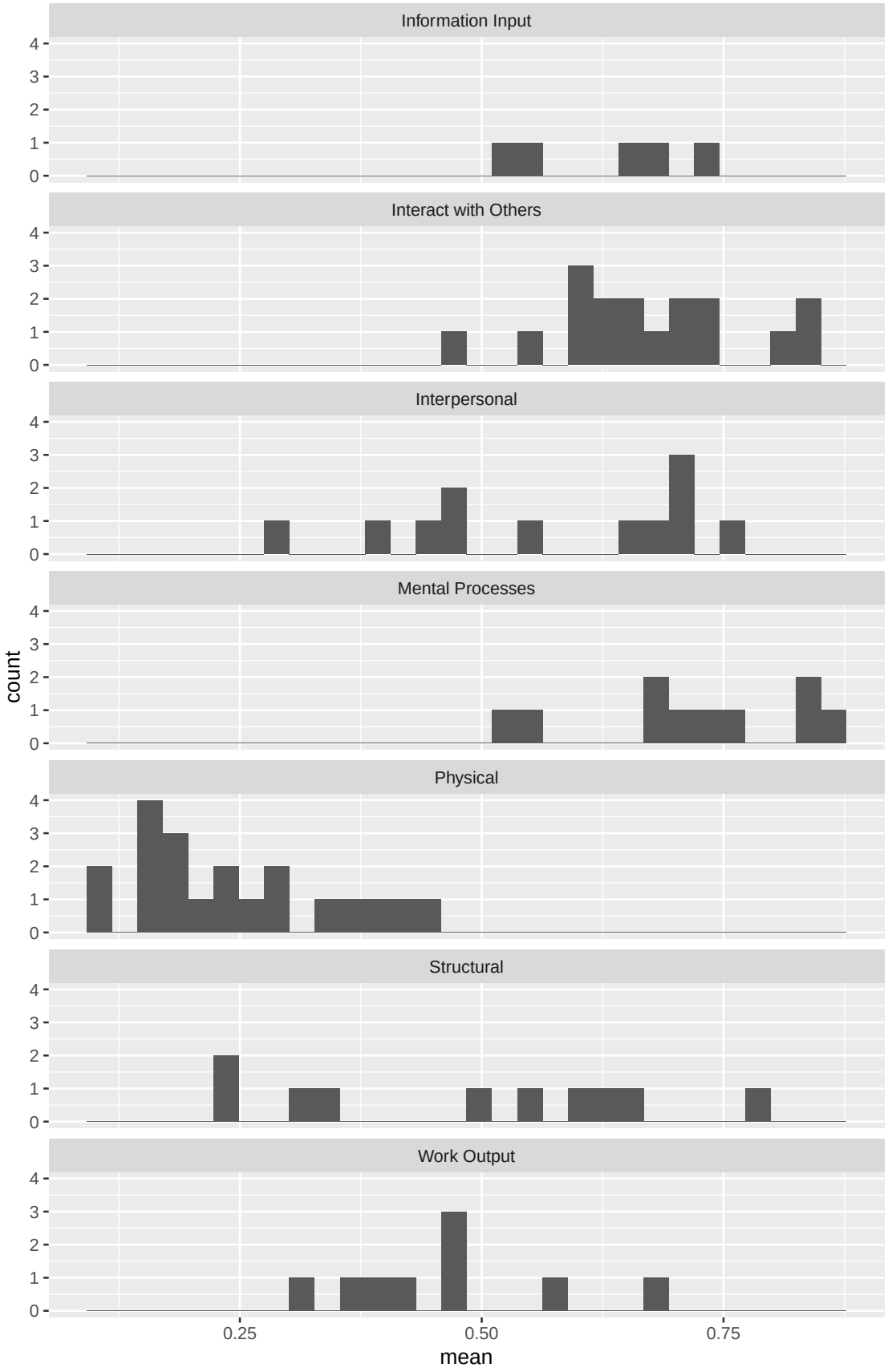

Figure 2. Resource and challenge agreement across ONet characteristic groupings (e.g., scales).