


COMMENTARY

# Neurodiversity and talent measurement: Revisiting the basics

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LeFevre-Levy et al. (2023) lay out a compelling argument in support of furthering research for navigating neurodiversity in organizational settings. We contend that one notable gap in this area is the development of evidenced-based practices for the effective identification, measurement, and use of job-relevant psychological constructs for staffing decisions. This gap is significant considering organizations currently bemoan a talent shortage or “talent war,” and the pressure to tap previously underrepresented pools of talent is higher than ever (Trost, 2020). As a field, industrial-organizational psychology and organizational behavior (IO/OB) has amassed a wealth of knowledge pertaining to validity, diversity, and fairness in employee selection. However, unique considerations come into focus if job analysis and psychometrically sound measurement practices are to be used effectively across the entire neurodiversity spectrum.

Certain neuroatypical employees may demonstrate different “true score” mean trait levels on relevant knowledge, skills, abilities, and other characteristics (KSAOs) compared with neurotypical employees, such as social, learning, and communication skills (Krzeminska et al., 2019). We posit this could lead to a new diversity–validity dilemma, similar to the one observed between Black and White respondents on cognitive ability measures (Ployhart & Holtz, 2008). Aside from mean score differences, differential functioning of assessments (i.e., a lack of measurement invariance) may arise from differences in neurotypical and neuroatypical cognitive processes. This potentially calls into question the overall validity of psychological assessments for selection purposes. Differences in social cognition and information-processing among neurodiverse individuals may also impact how they react to validation research and psychological assessment broadly. Furthermore, any unchecked assumptions or biases linked to a traditional job analysis conducted by, with, and for neurotypical individuals may inadvertently result in disadvantaging neuroatypical individuals.

We focus on three key areas to guide researchers and practitioners in the endeavor to improve neurodiverse employee selection and assessment: (a) the explicit inclusion of neurodiversity considerations in job analysis and content validation, (b) further research into the identification of appropriate psychological assessment characteristics, and (c) the inclusion of tests for construct equivalence across different neurodiverse groups. Throughout, we focus on broad recommendations, aiming to spark further discussion on how this may be appropriately applied to varying organizational contexts and desired employee selection outcomes.

## Job analysis

Job analysis (JA) serves as the proverbial backbone of all we do as IO/OB practitioners. As such, it is critical that data gathered truly represents the constituent job tasks and/or KSAOs needed for

the job. To our knowledge, research has not yet examined how the JA process is impacted by participants and stakeholders falling along a neurological continuum.

At the crux of most JA approaches is a reliance upon subject matter experts (SMEs) to provide researchers with information about the nature of the work or worker. Thus, social and cognitive biases from SMEs may enter at multiple stages of the process, including the delineation of job tasks and the linkage between tasks and individual characteristics (Morgeson & Campion, 1997). We recommend the following targeted steps be implemented into the standard JA toolkit: educating SMEs on neurodiversity considerations, including neuroatypical participants in the JA sample, and considering how the JA medium aligns with participant characteristics and desired outcomes.

With regard to initial identification of key work tasks (e.g., a task inventory), socially desirable but not strictly necessary traits may be overly weighted in JA (Morgeson & Campion, 1997). Thus, educating SMEs to use job requirements as ground truth evidence, rather than what “ought to be,” may help to prevent such biases from entering the process. It may also be useful to prompt JA participants to conduct thought experiments, posing the question of what alternative or unorthodox styles or approaches could lead to job success. Simply pointing out that an individual may gravitate toward conceptualizing the job from a neurotypical-centric perspective could be helpful, similar to the manner in which calling out ethnocentrism is effective (Myers, 2016). A more advanced tactic might be to provide concrete examples of the ways an individual with an atypical skill set may bring unique strengths, serving the dual purpose of priming the pump of divergent thinking as well as reducing stigma toward those that may be seen as an outgroup.

Aside from educating JA participants, intentional inclusion of neuroatypical incumbents, and support for them in the JA process, is important. This diversity of opinion may be especially valuable for disrupting shared mental models of the ideal or prototypical employee (Hong & Page, 2004). In fact, some neuroatypical individuals may be particularly gifted at seeing new patterns and mentally visualizing information (Morris *et al.*, 2015), allowing for keen insights into the nature of the job and linkages with KSAOs.

Job analytic data should be gathered in multiple forms where feasible. Those with low social or verbal abilities may fail to speak up in focus group settings (Paulhus & Morgan, 1997). Alternatively, those with deficits in attention or difficulty processing written information may be more engaged in a focus group compared with completing long written questionnaires. Methodology should be informed by the quality of data expected, given diversity in social and cognitive traits, rather than convenience.

As a final note on JA, one area of potentially fruitful applied research would be to leverage a person-centered approach to identify unique configurations of traits that are predictive of job success (Blickle *et al.*, 2013). This would allow researchers to identify compensatory mechanisms within different configurations of KSAOs (i.e., those more or less likely to be seen in neuroatypical vs. neurotypical populations). This is meaningfully different from the notion that a linear predictive model can include compensatory allowances. Instead, different clusters or latent profiles of individuals may be qualitatively rather than quantitatively unique but still succeed on the job.

### Assessment characteristics

We use the term *assessment characteristics* here to refer to any element or property of psychological assessment instruments aside from the construct they are intended to tap; this includes assessment medium, speededness, and item format. From a strictly scientific perspective, all assessment characteristics should be chosen based on the anticipated or proven improvement of psychometric properties. Practically speaking, assessments often serve multiple purposes for an organization, including signaling company culture and making the applicant experience more enjoyable (Rivera, 2012). Explicit attention to the role of neurodiversity in measurement helps to facilitate these multiple purposes.

Including a time limit for an aptitude-based assessment may be useful for increasing the psychological fidelity (i.e., similarity to actual on-the-job behaviors). Time limits may also be used as a tool to force more discrimination of candidates' ability levels. This is generally not recommended though, as factor analytic evidence suggests that speed (response time) is better modeled as an additional factor than as an additional indicator of the ability of interest (van der Linden, 2011). Particularly for those with learning disabilities, it may take longer to arrive at the correct answer to an item. This may lead to erroneous, time-driven subgroup differences across neurotypical and neuroatypical populations. If assessments are timed, allowances should be made for exceptions, both for legal and validity purposes.

Item format may additionally play a role in how neuroatypical applicants perform and react to assessments during the hiring process. Technology enabled and game-based assessment are quickly gaining popularity. These types of assessments not only invite the opportunity to make assessment more engaging for different groups but also introduce a bevy of psychometric concerns, not the least of which is differential functioning by neurodiversity status (Willis et al., 2021). Forced choice items represent another item format that may prove challenging for neuroatypical applicants. Such items present two statements of equal social desirability and require respondents to rate which statement best describes them. They are commonly used to reduce applicant faking (Jackson et al., 2000). However, these same items may put an undue cognitive burden on test-takers (Vasilopoulos et al., 2006) and elicit negative affective reactions, particularly when coupled with ideal point items (Harris et al., 2021). How might neuroatypicality interact with these issues? More research is required to understand how neuroatypical applicants perform on and react to different item response formats.

We recommend prehire assessments draw from the seven principles of universal design (Connell et al., 1997) during their development and validation, including flexibility in use (the design accommodates a wide range of individual preferences and abilities) and tolerance for error (the design minimizes hazards and the adverse consequences of accidental or unintended actions.). Similar to our recommendations for JA, assessment designers may benefit from a mixed methods approach drawing on interviews and focus groups to ensure assessments follow these principles and are inclusive not only for neuroatypical job seekers but all individuals seeking employment.

### Tests of measurement equivalence

Common practice in employee assessment validation is to identify any fairness issues across demographic subgroups (AERA et al., 2014). Fairness issues are fundamental validity issues. A psychological construct *should* function the same across all intended members of a population for whom interpretations and decisions will be made. Operationally, the nature and number of categories of demographic factors we examine are typically limited by logistical constraints (i.e., cell sample size) and legal considerations. For instance, in the United States, race/ethnicity, age, and gender are frequently flagged as factors of interest due to regulations governing adverse impact against said groups.

A similar approach could be readily applied to identifying differences in item or test functioning in neurotypical versus neuroatypical individuals, leveraging classical test theory and item response theory. Cognitive and noncognitive traits may differ along the neurological continuum both in terms of subgroup mean differences, as well as underlying factor structure (Goldstein et al., 2008; Lodi-Smith et al., 2019). If the underlying construct being measured is different for neurotypical and neuroatypical individuals, this may lead to differential prediction and/or muddying of the explanatory mechanisms behind effective job performance. This could open up a Pandora's box for many practitioners. However, we should not shy away from the challenge of understanding the complexity of measurement across the full range of human neurological functioning. It

should be noted that unlike the previously mentioned protected classes, neuroatypicalities can be considered a “deep” level characteristic of individuals. Thus, determining whether a measurement instrument functions differently in neurotypical versus neuroatypical individuals within a sample requires disclosure of group membership status, which may prompt fears of judgment or exclusion (Zolyomi *et al.*, 2018). We emphasize that organizations be cautious when requesting this information from applicants and incumbents.

## Conclusion

We hope this commentary sparks much research and discussion pertaining to effective measurement of psychological constructs across the neurological continuum. To do so requires attention at all stages of validation, including identifying and defining constructs of interests, carefully aligning assessment design with assessment purpose, and identifying any unintended consequences of assessment.

As noted by LeFevre-Levy *et al.*, neuroatypical individuals are not homogenous. Further research is needed to identify specific recommendations for specific neuroatypical groups (e.g., those with ASD vs. those with dyslexia). Additionally, it is worth noting that across many contexts, we run the risk of myopic focus when identifying the core requirements of the job. Leveraging the philosophies and methodologies of work analysis (Morgeson & Dierdorff, 2011) versus job analysis *per se* offers a possible solution. Work analysis involves the “systematic process of breaking down work performed into a number of separate tasks and duties . . . looking at several or, indeed, many jobs at the same time” and “identifies potential new jobs and a need to reorganize and restructure” (Heron, 2005, p. 7). The United Nations’ International Labour Organization specifically highlights work analysis as a tool that can benefit disabled workers, calling it “an opportunity to identify opportunities for work experience in enterprises for persons with disabilities” (Heron, 2005, p. 11). This ties in to Lefevre-Levy *et al.*’s call for better representation of the skills that neuroatypical individuals may bring to the workplace.

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