Human Resource Management Review xxx (xxxx) xxx–xxx

Contents lists available at ScienceDirect

Human Resource Management Review

journal homepage: www.elsevier.com/locate/hrmr

# The profile of the 'Good Judge' in HRM: A systematic review and agenda for future research

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ARTICLE INFO

*Keywords:*
Judgment
Accuracy
Rater
Judge
Individual differences
HRM
Machine-learning

ABSTRACT

In light of the pivotal importance of judgments and ratings in human resource management (HRM) settings, a better understanding of the individual differences associated with being a good judge is sorely needed. This review provides an overview of individual difference characteristics that have been associated with the accurate judges in HRM. We review empirical findings over > 80 years to identify what we know and do not know about the individual difference correlates of being an accurate judge. Overall, findings suggest that judges' cognitive factors show stronger and more consistent relationships with rating accuracy than personality-related factors. Specific intelligences in the social cognition domain, such as dispositional reasoning (complex understanding of traits, behaviors and a situation's potential to manifest traits into behaviors) show particular promise to help understanding what makes an accurate judge. Importantly, our review also highlights the scarcity of research on HRM context (selection vs. performance appraisal settings) and judges' motivation to distort ratings. To guide future research, we present a model that links assessor constructs to key processes required for accurate judgment and ratings in HRM contexts. The discussion suggests twenty questions for future work in this field.

## 1. Introduction

In human resource management (HRM), ratings play a ubiquitous (Guion & Highhouse, 2011) role. Organizations rely on them to make important decisions about selection, promotion, and performance management (Schmitt & Chan, 1998). Hence, it is easy to see why so much effort has gone into understanding how people evaluate others in organizations (see Denisi & Murphy, 2017; Graves & Karren, 1992; London, 2001; Parsons, Liden, & Bauer, 2001; Schleicher et al., 2018) and in identifying the characteristics of the 'good judge'[3] (e.g., Christiansen, Wolcott-Burnam, Janovics, Burns, & Quirk, 2005; Graves, 1993; Powell & Goffin, 2009).

This paper focuses on the latter question of individual characteristics associated with accurate judges. Accurate judges are expected to produce evaluations in HRM that show adequate rating quality, broadly defined as the degree to which a person's ratings are accurate, not only as *measures* of other people's characteristics (e.g., interview dimensions) but also as *predictors* of important

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[3] In this paper, the terms 'judge' and 'rater' refer to interviewers and assessors (e.g., psychologists, managers, or other trained assessors). Although in social psychology the term the "good" judge is typically used, this essentially refers to the "accurate" judge because accuracy serves in most cases as dependent variable. Therefore, we will use the term "accurate" judge throughout the paper.

https://doi.org/10.1016/j.hrmr.2018.09.003
Received 14 April 2018; Received in revised form 31 August 2018; Accepted 23 September 2018

outcomes (e.g., job performance criteria). However, we are currently in the dark about the profile of the accurate judge in HRM (see Jones & Born, 2008). Granted, there exists a rich body of research in social psychology on the characteristics of raters that make accurate zero/minimal acquaintance judgments. Unfortunately, the typical designs in such zero/minimal acquaintance research (e.g., Ambady, Hallahan, & Rosenthal, 1995; Borkenau & Liebler, 1992; Funder & Colvin, 1988) are not insightful for HRM because they lack the external validity to draw generalizable conclusions. For example, they often rely on brief get-to-know-you sessions and involve less motivation from both assessees and assessors (Lievens, 2017). Results of this type of research are difficult to generalize to performance ratings for example, where managers and supervisors have extensive opportunities to observe and develop acquaintance with the people they rate, whereas assessors in interviews and ACs may be, on a continuum of acquaintance, closer to the minimal/short-acquaintance end of the scale. In addition, social psychology research often ignores that various contextual effects and people's motivation to distort ratings might also play a role (as is the case in HRM).

There are at least two other reasons why a review of individual differences related to judgment accuracy in HRM is relevant and timely. First, judges (e.g., recruiters, interviewers, assessors, HR-professionals, and managers that routinely evaluate their personnel) can be screened and can be trained (Lievens, 2001; Lievens, Tett, & Schleicher, 2009; Lorenzo, 1984; Roch, Woehr, Mishra, & Kieszczynska, 2012; Stamoulis & Hauenstein, 1993; Stillman & Jackson, 2005). To screen accurate judges we need a systematic review that identifies individual difference predictors of rating quality criteria in HRM. Similary, rater training programs may be adapted to train raters by targeting these particular individual differences constructs (e.g., raters' knowledge structures) identified by such a review.

A second reason why a systematic review is relevant and timely relates to recent developments in staffing practices. In particular, the study of the accurate judge has gained new traction in light of recent social media and speed assessment applications. For example, notwithstanding caveats (Davison, Bing, Kluemper, & Roth, 2016; Roth, Bobko, Van Iddekinge, & Thatcher, 2016; Van Iddekinge, Lanivich, Roth, & Junco, 2016), recruiters are increasingly using and judging social media information of applicants to infer applicants' traits and abilities (e.g., Landers, Brusso, Cavanaugh, & Collmus, 2016). Such social media information might consist of texts, pictures, and/or short videos. Likewise, in recent HR applications such as video resumes (e.g., Waung, Hymes, & Beatty, 2014), recruiters judge people's traits on the basis of short video-based excerpts. More generally, an important issue is that the rise of machine learning for rating purposes (e.g., via the use of natural language processing; see Campion, Campion, Campion, & Reider, 2016; Speer, 2018) will not make human judges moot. Instead, the rise of algorithms goes hand in hand with an in-depth understanding of the characteristics, benefits, and drawbacks of human judges so that it becomes clear when “humans” and “machines” can work most effectively together for rating purposes. Therefore, it is nowadays critical to understand which factors relate to being an accurate judge.

### 1.1. The present review and organizing framework

We review empirical research on individual differences that predict rating accuracy applicable to the HRM domain. Our review draws from three primary HRM fields: interviews, assessment centres, and performance appraisal. By weighing the evidence in support of individual difference predictors of accuracy, we will outline what we know and do not yet know about the characteristics of the accurate judge in HRM. We summarize this empirical research base in Tables 1 and 2. Finally, the review outlines 20 questions (see Table 3) that hold most potential for advancing knowledge of individual differences in rating accuracy.

The organizing framework for our review integrates two seminal models, namely the Realistic Accuracy Model (RAM) (Funder, 1995, 1999, 2012) and Murphy and Cleveland's (1995) context model of judgment and rating. Accordingly, the model in Fig. 1 links rater constructs to specific RAM stages in a specific context (selection vs. performance appraisal). In the RAM, accuracy results from a four-stage social cognitive process. The target person first emits a behavior that is (1) *relevant* to the trait to be judged, in a manner where this information is (2) *available* to the perceiver. Next, the rater must (3) *detect* and correctly (4) *utilize* the information to form an impression of an applicant characteristic. Essentially, we consider the RAM as depicting the four major tasks that judges need to undertake in judging and rating others. Following a classical personnel selection paradigm (see Schmitt, Arnold, & Nieminen, 2017) the stages in the RAM thus represent the results from a ‘job analysis’ of the judge. Our review then identifies the predictors, namely the range of rater individual difference constructs that may facilitate these key judgment tasks/processes in the RAM—cue detection and cue utilization—required to achieve high-quality rating outcomes in HRM. So, a distinguishing feature of our model is that it links rater individual differences to key judgment processes (namely cue detection and cue utilization) thought to cause accuracy (RAM) (Funder, 1999). As shown in Fig. 1, these individual difference constructs that will be the focus of our review are listed below the four main RAM stages.

In line with Murphy and Cleveland (1995), our model further highlights that judgment in HRM does not occur in a vacuum. That is, an important aspect of our model is that we explicitly include the HRM context (performance appraisal vs. selection) and distinguish between an accurate judge vs. an accurate rater. That is, “judgments represent private evaluations; ratings represent public statements about ratees' performance” (Murphy & Cleveland, 1995, p. 23). Therefore, ratings follow judgments in the ‘rendering phase’ (Banks & Murphy, 1985) where the rater fills in the rating form with an assigned score(s) that might be subject to perceived consequences of ratings, political pressures, personal goals to advance interests in their department, etc. (Spence & Keeping, 2011). The distinction between judgment and ratings is especially acknowledged in a performance appraisal context (less so in a selection context) and our model introduces a more nuanced way to understand what makes an accurate judge vs. an accurate rater. For the same reason, the model includes motivation to distort (Spence et al., 2011) as a moderator between judgments and ratings.

**Table 1**
Research evidence[a] on individual differences predictors of judgment accuracy in HRM research (sorted alphabetically within predictor cluster).

| Nr | Author(s) | *N* | Cluster | Predictor | Effect size[b] |
|---|---|---|---|---|---|
| 1 | Borman (1979) | 146 | Affect | Affect | No/negligible |
| 2 | Letzring (2008) [study 2] | 138 | Affect | Attachment avoidance | Medium |
| 3 | Cardy et al. (1986) | 66 | Affect | Liking | Medium |
| 4 | Hartog (1991) | 250 | Attitude | Attitudes | Not avail. (abstract only) |
| 5 | Gibson (2006) | *nr*[c] | Attitude | Life satisfaction | No/negligible |
| 6 | Lewis (2002) | 149 | Attitudes | Expectations | Not avail. (abstract only) |
| 7 | Schneider et al. (1953) | 400 | Cognitive abilities | Academic performance | Large |
| 8 | Bayroff et al. (1954) | 400 | Cognitive abilities | Aptitude | Not avail. (abstract only) |
| 9 | Schneider and Bayroff (1953) | 400 | Cognitive abilities | Aptitude | Large |
| 10 | Borman (1979) | 146 | Cognitive abilities | Attention span | No/negligible |
| 11 | Brtek and Motowidlo (2002) | 338 | Cognitive abilities | Attentiveness | Medium |
| 12 | Lewis (2002) | 149 | Cognitive abilities | Behavior memory | Not avail. (abstract only) |
| 13 | Sanchez and De La Torre (1996) | 262 | Cognitive abilities | Behavior memory | Various (small) |
| 14 | Adair (1987) [study 1] | 147 | Cognitive abilities | Cognitive complexity | Not avail. (abstract only) |
| 15 | Adair (1987) [study 2] | *nr*[c] | Cognitive abilities | Cognitive complexity | No/negligible |
| 16 | Bernardin et al. (1982) | 72 | Cognitive abilities | Cognitive complexity | Small |
| 17 | Borman (1979) | 146 | Cognitive abilities | Cognitive complexity | No/negligible |
| 18 | Brecker (1988) | 122 | Cognitive abilities | Cognitive complexity | Not avail. (abstract only) |
| 19 | Christiansen et al. (2005) | 122 | Cognitive abilities | Dispositional reasoning | Large |
| 20 | De Kock et al. (2015) | 142 | Cognitive abilities | Dispositional reasoning | Various (small to medium) |
| 21 | Janovics (2003) | 410 | Cognitive abilities | Dispositional reasoning | Not avail. (abstract only) |
| 22 | Powell (2008) | 164 | Cognitive abilities | Dispositional reasoning | Various (up to medium) |
| 23 | Powell and Bourdage (2016) | 144 | Cognitive abilities | Dispositional reasoning | Various (small to medium) |
| 24 | Borman and Hallam (1991) | 79 | Cognitive abilities | General mental ability | Medium |
| 25 | Brecker (1988) | 120 | Cognitive abilities | General mental ability | Not avail. (abstract only) |
| 26 | Christiansen et al. (2005) | 122 | Cognitive abilities | General mental ability | Small to medium |
| 27 | Davis (1999) | 82 | Cognitive abilities | General mental ability | Not avail. (abstract only) |
| 28 | De Kock et al. (2015) | 142 | Cognitive abilities | General mental ability | Small to medium |
| 29 | George (2006) | 301 | Cognitive abilities | General mental ability | Small (but contingent) |
| 30 | Hauenstein and Alexander (1991) | 100 | Cognitive abilities | General mental ability | Small to medium |
| 31 | Janovics (2003) | 410 | Cognitive abilities | General mental ability | Not avail. (abstract only) |
| 32 | Letzring (2008) [study 2] | 138 | Cognitive abilities | General mental ability | No/negligible |
| 33 | Lippa and Dietz (2000) | 109 | Cognitive abilities | General mental ability | Medium |
| 34 | Smither and Reilly (1987) | 90 | Cognitive abilities | General mental ability | Various (up to medium) |
| 35 | Powell (2008) | 164 | Cognitive abilities | General mental ability | Small (both neg. and pos.) |
| 36 | Borman (1979) | 146 | Cognitive abilities | General mental ability | Medium |
| 37 | Borman and Hallam (1991) | 79 | Cognitive abilities | Spatial reasoning ability | Medium |
| 38 | Adair (1987) [study 1] | 147 | Cognitive style/heuristics | Attribution | Not avail. (abstract only) |
| 39 | Johnson (1987) | 73 | Cognitive style/heuristics | Cognitive modeling | Not avail. (abstract only) |
| 40 | Lee (1988) | 95 | Cognitive style/heuristics | Cognitive style | Medium |
| 41 | Willis (1985) | 264 | Cognitive style/heuristics | Cognitive style | No/negligible |
| 42 | Cardy and Kehoe (1984) | 359 | Cognitive style/heuristics | Field independence | Small-to-medium |
| 43 | Clevenger (1991) | *nr*[c] | Cognitive style/heuristics | Field independence | Not avail. (abstract only) |
| 44 | Hauenstein and Alexander (1991) | 100 | Cognitive style/heuristics | Implicit rating theory | Medium |
| 45 | Uggerslev et al. (2008) | 236 | Cognitive style/heuristics | Implicit rating theory | Various (all small) |
| 46 | Borman (1979) | 146 | Cognitive style/heuristics | Problem-solving style | No/negligible |
| 47 | George (2006) | 301 | Cognitive style/heuristics | Prototypes of applicants | Not avail. (abstract only) |
| 48 | Borman (1979) | 146 | Complex task | Base rate estimation | No/negligible |
| 49 | Schmid Mast et al. (2011) | 131 | Complex task | Deception detection task | Small |
| 50 | Ambady et al. (1995) | 90 | Complex task | Decoding skills | Various (small) |
| 51 | Ambady et al. (1995) | 90 | Complex task | Non-verbal sensitivity | Various (small to medium) |
| 52 | Borman (1979) | 146 | Demographic | Age | No/negligible |
| 53 | Paquet (2005) | 181 | Demographic | Culture (Indiv-Collectiv.) | Not avail. (abstract only) |
| 54 | Ambady et al. (1995) | 90 | Demographic | Gender | Small (negative) to medium |
| 55 | Carney et al. (2007) | 334 | Demographic | Gender | Small |
| 56 | Chan et al. (2011) [study 1] | 898 | Demographic | Gender | Not reported |
| 57 | Christiansen et al. (2005) | 122 | Demographic | Gender | No/negligible |
| 58 | De Kock et al. (2015) | 142 | Demographic | Gender | Small |
| 59 | Letzring (2008) [study 2] | 138 | Demographic | Gender | Small to medium |
| 60 | Letzring (2010) | 80 | Demographic | Gender | Small to medium |
| 61 | Lippa and Dietz (2000) | 109 | Demographic | Gender | Various (No/negligible to small) |
| 62 | Schmid Mast et al. (2011) | 131 | Demographic | Gender | Not reported |
| 63 | Powell (2008) | 164 | Demographic | Gender | Small to medium |
| 64 | Vogt and Colvin (2003) | 102 | Demographic | Gender | Medium |
| 65 | Schmid Mast et al. (2011) | 131 | Demographic | Job experience | Small to medium (negative) |
| 66 | Kolk et al. (2002) | 121 | Demographic | Rating experience | Small to medium |
| 67 | Borman (1979) | 146 | Demographic | Rating experience | No/negligible |
| 68 | Borman and Hallam (1991) | 79 | Demographic | Rating experience | Small (negative) |

(*continued on next page*)

**Table 1** (*continued*)

| Nr | Author(s) | *N* | Cluster | Predictor | Effect size[b] |
|---|---|---|---|---|---|
| 69 | Wood and Marshall (2008) [study 1] | 194 | Demographic | Rating experience | Small |
| 70 | Letzring (2010) | 80 | Demographic | Similarity | Small |
| 71 | Borman (1979) | 146 | Interests | Career interests | Various (no/negligible) |
| 72 | Borman (1979) | 146 | Interests | Social interest | Small to medium (negative) |
| 73 | Brtek and Motowidlo (2002) | 338 | Motivation | Accountability | Various (small to medium) |
| 74 | Rosenbaum (1992) | 579 | Motivation | Accountability | Not avail. (abstract only) |
| 75 | Strupeck (2004) | *nr*[c] | Motivation | Accountability | Not avail. (abstract only) |
| 76 | Wood and Marshall (2008) [study 1] | 194 | Motivation | Accountability | Medium |
| 77 | Craven (1988) | *nr*[c] | Motivation | Accuracy motivation | Not avail. (abstract only) |
| 78 | Salvemini et al. (1993) | 108 | Motivation | Accuracy motivation | Medium |
| 79 | Ispas (2010) | 83 | Motivation | Accuracy motivation | Small |
| 80 | Borman (1979) | 146 | Motivation | Effort | No/negligible |
| 81 | Murphy, Garcia, et al. (1982) | 44 | Perception | Behavior observation | Small to large |
| 82 | Borman (1979) | 146 | Personality | Aggression | Small |
| 83 | Christiansen et al. (2005) | 122 | Personality | Big 5 | Small to medium |
| 84 | De Kock et al. (2015) | 142 | Personality | Big 5 | Various (most small) |
| 85 | Gibson (2006) | *nr*[c] | Personality | Big 5 | Not avail. (abstract only) |
| 86 | Janovics (2003) | 410 | Personality | Big 5 | Not avail. (abstract only) |
| 87 | Letzring (2008) [study 1] | 142 | Personality | Big 5 | Small to medium |
| 88 | Letzring (2008) [study 2] | 138 | Personality | Big 5 | Small to medium |
| 89 | Lippa and Dietz (2000) | 109 | Personality | Big 5 | Various (up to small to medium) |
| 90 | Powell (2008) | 164 | Personality | Big 5 | Various (small to medium) |
| 91 | Borman (1979) | 146 | Personality | Composite (cluster) | Medium |
| 92 | Davis (1999) | 82 | Personality | Conscientiousness | No/negligible |
| 93 | Borman (1979) | 146 | Personality | Detail orientation | Small to medium |
| 94 | Borman and Hallam (1991) | 79 | Personality | Detail orientation | Small |
| 95 | Powell and Bourdage (2016) | 144 | Personality | Emotionality | Various (most small) |
| 96 | Letzring (2008) [study 2] | 138 | Personality | Interpersonal problems | Small to medium |
| 97 | Lippa and Dietz (2000) | 109 | Personality | Masculinity/femininity | Small |
| 98 | Letzring (2008) [study 2] | 138 | Personality | Narcissism | Small to medium |
| 99 | Davis (1999) | 82 | Personality | Need-to-evaluate | Size not reported[c] |
| 100 | Gibson (2006) | *nr*[c] | Personality | Need-to-evaluate | Not avail. (abstract only) |
| 101 | Borman and Hallam (1991) | 79 | Personality | Personal adjustment | Small |
| 102 | Vogt and Colvin (2003) | 102 | Personality | Psychological communion | Medium |
| 103 | Letzring (2008) [study 2] | 138 | Personality | Psychological well-being | Various (small to medium) |
| 104 | Human et al. (2011) | 380 | Personality | Psychological well-being | Various (no estimate avail.) |
| 105 | Borman (1979) | 146 | Personality | Self-control | Small to medium |
| 106 | Borman & Hallam, 1991 | 79 | Personality | Self-control | No/negligible |
| 107 | Borman (1979) | 146 | Personality | Self-monitoring | No/negligible |
| 108 | Davis (1999) | 82 | Personality | Self-monitoring | Not avail. (abstract only) |
| 109 | Borman (1979) | 146 | Personality | Sociability | No/negligible |
| 110 | Borman (1979) | 146 | Personality | Tolerance | Small |
| 111 | Adams (1927) | 80 | Personality | Various traits (not Big 5) | Invalid (questionable method used) |
| 112 | Ambady et al. (1995) | 90 | Personality | Various traits (not Big 5) | Various (small to medium) |
| 113 | Borman (1979) | 146 | Personality | Various traits (not Big 5) | Various (up to small to medium) |
| 114 | Hjelle (1969) | 72 | Personality | Various traits (not Big 5) | Various (small to large) |
| 115 | Letzring (2008) [study 2] | 138 | Personality | Various traits (not Big 5) | Small to medium |
| 116 | Colman et al. (2017) | 1153 | Personality | Perspective-taking | Various |
| 117 | Colman et al. (2017) | 1153 | Personality | Empathic concern | Various |
| 118 | Colman et al. (2017) | 1153 | Personality | Fantasy | Various |
| 119 | Colman et al. (2017) | 1153 | Personality | Personal distress | Various |
| 120 | Brtek and Motowidlo (2002) | 338 | Rater behavior | Note frequency | Medium |
| 121 | Kolk et al. (2002) | 121 | Rater behavior | Note taking | Small |
| 122 | Middendorf and Macan (2002) | 169 | Rater behavior | Note taking | N/A |
| 123 | Letzring (2008) [study 1] | 142 | Rater behavior | Social behavior | Various (up to medium) |
| 124 | Freeberg (1969) | 69 | Self/other evaluations | Acquaintance | Not reported |
| 125 | Letzring et al. (2006) | 180 | Self/other evaluations | Acquaintance | Medium to large |
| 126 | Connelly et al. (2010) [meta-analysis] | N/A | Self/other evaluations | Acquaintance/intimacy | Various |
| 127 | Borman (1979) | 146 | Self/other evaluations | Assumed similarity | No/negligible |
| 128 | Zalesny et al. (1992) | 83&116 | Self/other evaluations | Teaching attitudes | Various (medium - to large +) |
| 129 | Davis (1999) | 82 | Self-evaluations | Attributional complexity | No/negligible |
| 130 | Letzring (2008) [study 2] | 138 | Self-evaluations | Attributional complexity | Small |
| 131 | Borman (1979) | 146 | Self-evaluations | Empathy | Small to medium |
| 132 | Borman and Hallam (1991) | 79 | Self-evaluations | Evaluative tendency | No/negligible |
| 133 | Powell (2008) | 164 | Self-evaluations | Interpersonal orientation | Small to medium |
| 134 | Schmid Mast et al. (2011) | 131 | Self-evaluations | Rating self-efficacy | No/negligible |
| 135 | Schmid Mast et al. (2011) | 131 | Self-evaluations | Rating self-efficacy | Medium |
| 136 | Wood and Marshall (2008) [study 1] | 194 | Self-evaluations | Rating self-efficacy | Medium to large |

(*continued on next page*)

**Table 1** (*continued*)

| Nr | Author(s) | *N* | Cluster | Predictor | Effect size[b] |
|---|---|---|---|---|---|
| 137 | Borman (1979) | 146 | Self-evaluations | Self-competence | No/negligible |

*Notes.* The table lists at least $N = 137$ distinguishable individual (or mini-sets of) effects in $k = 48$ reported studies. The actual number of individual effects is substantially larger, as some studies reported only selected results from large numbers of individual differences tested.

[a] These studies do not include work conducted outside of I–O literature. Fringe cases are discussed in our inclusion criteria.

[b] We used Cohen's (1988) guidelines to interpret effect sizes (*r*), i.e. no/trivial (0.00), small (0.10), medium (0.30) and large (0.50) effects. An effect-size interval of 0.05 around these point estimates was applied to cluster effect sizes into a description of magnitude. Effects are positive unless indicated as negative.

[c] Sample size (or other information) is not reported for some studies because it was unavailable (for instance, when results were drawn from dissertation abstracts and the original dissertation could not be sourced). More information on all these studies may be requested from the first author.

**Table 2**
Meta-analysis of individual difference predictors of judgment accuracy in HRM.

| Rater characteristic | *N* | *k* | $\bar{r}$ | $SD_r$ | *90% CI* | *80% CV* |
|---|---|---|---|---|---|---|
| Cognitive variables | 2789 | 22 | 0.24 | 0.14 | 0.18, 0.29 | 0.09, 0.38 |
| Cognitive ability | 1645 | 14 | 0.18 | 0.14 | 0.12, 0.25 | 0.05, 0.31 |
| Dispositional reasoning | 1144 | 8 | 0.31 | 0.11 | 0.24, 0.38 | 0.21, 0.41 |
| Personality | 5577 | 41 | 0.04 | 0.11 | 0.01, 0.07 | −0.05, 0.14 |
| Extraversion | 1087 | 8 | 0.02 | 0.12 | −0.06, 0.10 | −0.08, 0.12 |
| Agreeableness | 1229 | 9 | 0.09 | 0.11 | 0.02, 0.16 | 0.00, 0.18 |
| Conscientiousness | 1087 | 8 | 0.01 | 0.07 | −0.04, 0.05 | 0.01, 0.01 |
| Emotional stability | 1087 | 8 | −0.01 | 0.08 | −0.06, 0.05 | −0.01, −0.01 |
| Openness | 1087 | 8 | 0.10 | 0.13 | 0.01, 0.19 | −0.03, 0.23 |

*Notes:* $N$ = total sample size; $k$ = number of studies included in the analysis; $\bar{r}$ = mean observed correlation (uncorrected for indirect range restriction, unreliability, criterion unreliability); $SD_r$ = observed standard deviation of correlations; 90% CI = 90% confidence interval around $\bar{r}$; 80% CV = 80% credibility interval around $\bar{r}$.

## 2. Review method

### 2.1. Literature search

#### 2.1.1. Locating studies

We used four methods to locate relevant studies. First, we conducted a computer search of Web of Science and Dissertation Abstracts to retrieve research studies containing the terms *accuracy*, *assessment centre, HR, interview*, *judgment, rater*, *rating*, *performance*, and *validity*. We filtered the resulting lists according to publication field and research area. The second method was a manual search of major journals within the domain of HRM and industrial and organizational (I—O) psychology, including *Journal of Applied Psychology*, *Personnel Psychology*, *International Journal of Selection and Assessment*, *Human Resource Management Review*, *Human Performance, Human Resource Management Journal,* and others. Third, we retrieved publications within reference lists of seminal accuracy literature published both in journal articles and books. Last, we also trawled the personal research websites of five active accuracy researchers.

#### 2.1.2. Inclusion criteria

To be included in our review, a study had to meet the following three criteria:

1. In terms of independent variable, we retained only studies that included individual difference constructs (i.e., rater characteristics such as demographic variables, personality traits, etc.) as predictors of rating criteria.
2. In terms of dependent variable, studies had to include measures of judges' rating quality. We decided to exclude measures of rating error (such as halo, leniency, etc.) because these indices show little empirical relationships with measures of judgment accuracy and validity. For example, in a meta-analysis by Murphy and Balzer (1989) the average correlation between rating error (various indices) and judgment accuracy indices was a mere 0.05 (see also Kasten & Weintraub, 1999), suggesting that the ability to correctly infer others' characteristics is relatively unrelated to tendencies to show systematic errors in one's evaluations. Therefore, we focused on judgment accuracy and rating validity (construct-related and criterion-related validity), rather than on rating bias, unfair discrimination in ratings, etc.
3. We excluded studies that were not immediately relevant to HRM due to their choice of rating tasks, target dimensions, or experimental stimuli. For example, we discarded studies that used students to judge the sexuality of other students from non-verbal behavior. Other investigations that were not easily generalizable to the HRM context focused on judging moods, emotions or affective states of others in non-work contexts (e.g., Davis & Kraus, 1997; Hall, Goh, Schmid Mast, & Hagedorn, 2015; Letzring,

**Table 3**
Twenty questions for future research about individual differences in rating quality in HRM.

| Category | Characteristic | Research question (RQ) |
|---|---|---|
| Cognitive | General intelligence | RQ1. Is the relationship between intelligence and rating accuracy non-linear such that accuracy increases with intelligence, but the slope decreases at high levels of intelligence? |
| | | RQ2. Do interview structure and situational complexity moderate the effect of intelligence on accuracy? |
| | | RQ3. Is intelligence more important for accurately judging some dimensions (e.g., personality, interview competencies and assessment centre dimensions) than others? |
| | | RQ4. Is intelligence more important for judging complex stimuli (e.g. live people) in more complex situations (assessment center tasks where different situation are activated) than less complex stimuli (e.g. videos or 'paper people') in less complex situations (one-on-one interviews)? |
| | Dispositional reasoning | RQ5. What is the nomological place of dispositional reasoning vis-á-vis emotional and social intelligence, and what is their relative importance in predicting judgment accuracy in HRM? |
| | | RQ6. Can dispositional reasoning be developed with training and, if so, why and how does training work? |
| | | RQ7. What is the relative predictiveness of the subcomponents of dispositional reasoning (i.e., induction, extrapolation and contextualization) in different judgment contexts (e.g. interviews, AC tasks, performance appraisal) and for judging different target constructs (e.g., personality, dimensions)? |
| | Behavior memory | RQ8. What is the comparative validity of impression-memory (i.e., memory of a dispositional or trait inference) versus behavior memory (i.e., memory of an observed behavior) for predicting judgment accuracy? |
| | Cognitive style/heuristics | RQ9. Do cognitive style and heuristics predict judgment accuracy in HRM ratings? |
| | Cognitive complexity | RQ10. How do ability-based measures of cognitive complexity predict rating accuracy as compared to self-report measures of cognitive complexity? |
| | Attributional complexity | RQ11. Does assessors' attributional complexity predict their rating accuracy? |
| Personality | Personality traits | RQ12. Do rater personality traits moderate the effect of intelligence on rating accuracy? |
| | Rater behaviors | RQ13. Which rater behaviors are most effective to elicit behavioral cues from targets, and do individual differences in raters' ability to elicit cues predict their rating accuracy? |
| | | RQ14. Is the increased use of interviewers' behavior prompts in interviews related to higher cue availability and overall rating accuracy? |
| | Motivation | RQ15. How do assessors' levels of accuracy motivation affect their judgment accuracy? Is this due to enhanced cue attentiveness, better cue utilization, or to both? |
| | | RQ16. How does motivation to distort affect rating quality in HRM, for example, does it moderate the relationship between judgments and ratings, or does it have a direct effect on ratings? |
| Specific characteristics | Behavior observation | RQ17. Do innovative measures of behavior observation ability (e.g., signal detection measures; see Lord, 1985) predict rating accuracy in conjunction with measures of behavior memory? |
| | Personality trait chronic accessibility | RQ18. Does assessors' personality trait chronic accessibility for various Big Five traits predict their trait judgment accuracy? |
| Context | | RQ19. Does rating context influence rating quality, for example, are raters who are accurate in judging other people in performance appraisal ratings, also accurate judges of other people in selection settings (e.g., interviews, ACs, social media judgments)? |
| | | RQ20. In which contexts and under which conditions can machine-learning replace/complement/supplement raters in making more accurate judgments and ratings? |

2015; Murphy & Hall, 2011). We opted to include selected lab studies where personality traits were judged given that reliance on other-ratings of personality is an increasingly popular choice in HRM (Mount, Barrick, & Strauss, 1994; Zimmerman, Triana, & Barrick, 2010).

### 2.1.3. Study characteristics

A total of 54 studies adhered to all our inclusion criteria.[4] These spanned nine decades (from 1927 to 2017). Each study was coded by the first author on the following dimensions: (1) sample size, (2) type of sample (students, employees, managers, etc.), (3) target dimension/trait, (4) research design, (5) rating quality criterion measure, (6) theoretical framework, and finally, (7) observed effect size. Table 1 shows the studies reviewed in terms of selected categorization variables.

The median sample size for the studies reviewed was 143 participants ($M$ = 215.10; $SD$ = 209.407; Min = 44; Max = 1153). Considering the nature of target traits, study participants were most often required to judge others' job performance ($k$ = 23; 43.4%) or personality ($k$ = 17; 32.1%), whereas only a few studies considered raters' ability to judge interview ($k$ = 4; 7.5%) or assessment center dimension ($k$ = 4; 7.75%) performance. As laboratory studies cast in a HRM setting ($k$ = 43; 81.1%) were a popular choice, only a small proportion ($k$ = 3; 5.7%) consisted of field studies. A relative balance existed between cross-sectional ($k$ = 28; 52.8%) and experimental ($k$ = 24; 45.3%) research designs.

Our review revealed that a wide range of criterion measures were used. A distinction could be made between 'accuracy' criteria

[4] We focused on peer-reviewed research, although we did include both published and unpublished (e.g., dissertations and theses) studies. A few research outputs were duplicates because they were available in both dissertation and journal article format. In such cases, we removed them and retained only the journal article results.

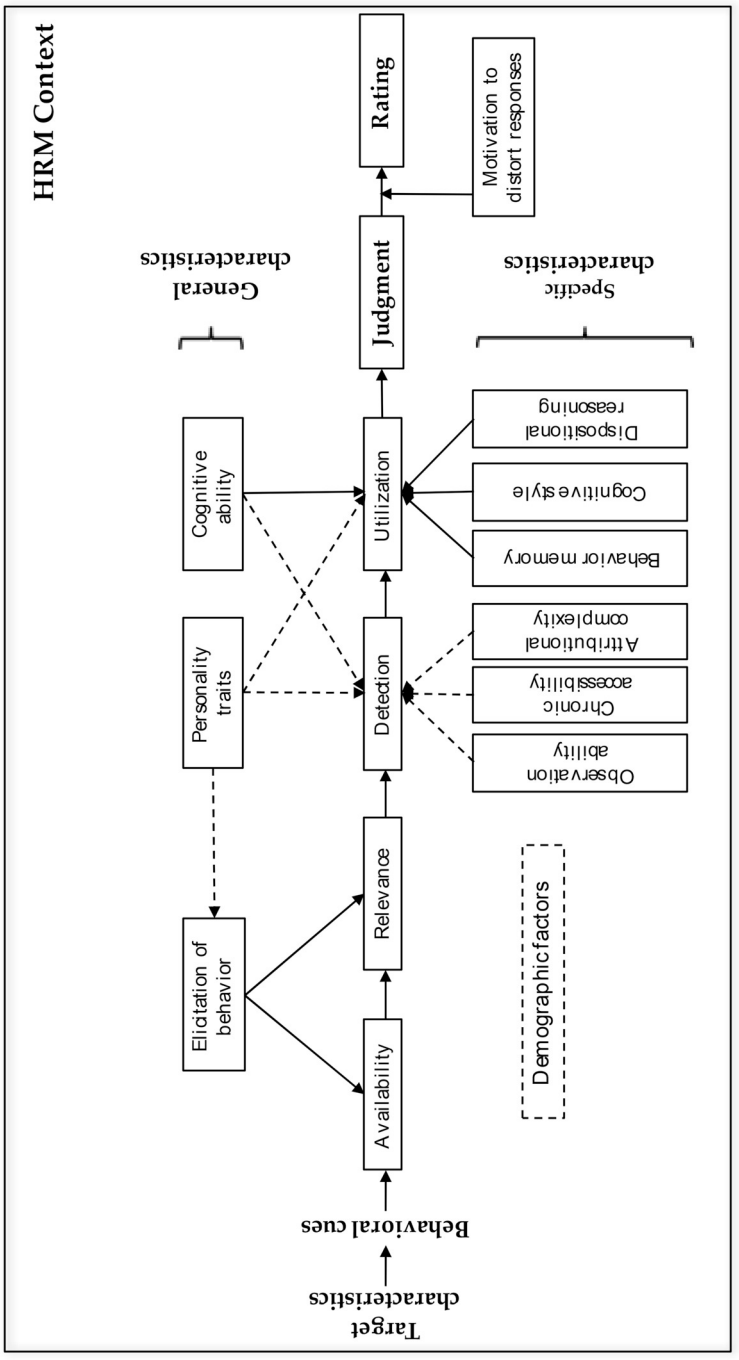


**Fig. 1.** A model of individual differences in judgment and rating accuracy.

(i.e., correlating judges' dimension or trait ratings of targets with some true score measure/s) and 'validity' criteria (i.e., correlating judges' ratings with an external criterion, such as performance appraisal or training performance ratings). In our review, 81.1% of the studies used accuracy criteria, whereas only 3.8% relied upon validity criteria (in 13.2% the criterion was unclear and 1.9% used both). The most often used accuracy indices were correlational measures (i.e., correlations between a judge's ratings and so-called subjective matter expert derived 'true scores'). Although some studies used multiple correlational measures ($k$ = 10; 18.9%), Cronbach's accuracy indices (Cronbach, 1955) were popular (used in 21 studies; 40.4%), followed by simple profile correlations (with Fisher's $r$-to-$z$ transformation; used in 18 studies = 34.6%). Borman's Differential Accuracy (Sulsky & Balzer, 1988) was used in only two studies. Aside from correlational measures, five studies (9.6%) employed difference score (e.g., $D^2$) indices. As only 3.8% used validity criteria, we do not seem to know a lot about the characteristics of judges that provide valid ratings.

Together, the type of judges and rating criteria used in prior research are relevant for our understanding of an accurate judge vs. an accurate rater. For example, the research base covers a broad spectrum of levels-of-acquaintance (from low acquaintance, in interview and AC studies, to high acquaintance, in performance appraisal studies). Moreover, studies of rating quality generally do not distinguish operationally between judgments and ratings. As such, readers should keep in mind the potential limits of generalizing findings across rating contexts (selection vs. appraisal) and rating criteria (judgments vs. ratings).

As guiding theoretical framework for their empirical investigations, an equal number of studies relied on the Realistic Accuracy Model (Funder, 1995) ($k$ = 9; 17%) or cognitive information processing theories ($k$ = 9; 17%). The trend was to adopt RAM in personality judgment studies, whereas information processing approaches were popular in performance appraisal studies. Although it was not always possible to identify the geographical location of the research (as most studies did not reveal this information) our initial data frame of studies (drawn from Web of Science) indicated that the majority were conducted in North America (58.5%) or European countries (37.7%)—only 3.8% of studies were done outside of these territories.

## 3. Review results

### 3.1. General characteristics: general intelligence

As judging others is a highly complex task that places a heavy information processing load on the rater (Kolk, Born, Van der Flier, & Olman, 2002; Lance, Foster, Gentry, & Thoresen, 2004) cognitive processing abilities may be an important key to producing accurate judgments (Dipboye, Macan, & Shahani-Denning, 2012; Wyer & Srull, 2014). General intelligence may affect rating quality positively because it enables effective behavior information processing, considered a key process in trait cue utilization (Funder, 1999). In their seminal review of performance rating research, Landy and Farr (1980) conclude, "in general, cognitive characteristics of raters seem to hold the most promise for increased understanding of the rating process"(p. 72). In an early review of studies on cognitive ability and accuracy, Allport (1937) observed, "Experimental studies have found repeatedly that some relationship exists between superior intelligence and the ability to judge others" (p. 514).

Overall, rater general intelligence is the most consistent predictor of rating accuracy (uncorrected[5] validity coefficients = 0.31; Borman, 1979; 0.24; Borman & Hallam, 1991; 0.25; Christiansen et al., 2005; 0.23–0.34; Hauenstein & Alexander, 1991; 0.36; Lippa & Dietz, 2000; average 0.54; Schneider & Bayroff, 1953) of all individual differences we reviewed. That said, effect sizes are often rather modest (e.g. uncorrected $0.10 < r < 0.30$) and some studies (e.g., Letzring, 2008; Powell, 2008) actually found no relationship between intelligence and accuracy.

Although substantial evidence supports the link between cognitive ability and rating accuracy, there are still unresolved questions. First, their relationship may not be as simple as being linear. For example, evidence suggests that general intelligence may be non-linearly related to raters' ability to evaluate others. In their investigation, Smither and Reilly (1987) had ninety subjects rate videotapes of simulated work performances by five ratees and found that the most intelligent raters were generally *less* accurate than moderately intelligent raters. But as expected, moderately intelligent raters were more accurate than the least intelligent raters. Their results suggest that accurate judgment may require a minimal level of information processing capacity, above which the marginal utility of increased intelligence for rating accuracy may dissipate. As such, the idea that 'more is better' may not always be the case.

Second, moderator effects[6] need a closer look. According to our model, the availability of contextual information may inhibit or promote cue detection and cue utilization. We anticipate that boundary conditions, such as interview structure (e.g., George, 2006) or situational characteristics (e.g., Brecker, 1988; Rauthmann, Sherman, & Funder, 2015) may influence the type and richness of cues available to the judge. Logically, the effect of intelligence on accuracy may increase with task complexity. Social cognitive theory suggests that intelligence can be expected to relate stronger to accuracy when it plays a greater substantive role in producing accurate judgments, such as when information processing demands are high (Ambady & Rosenthal, 1992). In this line, Lippa and Dietz (2000, p. 514) state "we suspect that intelligence will prove to correlate even more strongly with judgmental accuracy in studies that ask participants to judge personality from complex, extended information, rather than from 'thin slices' of relatively impoverished video information".

For example, cue-rich situations, as found in high-structure interviews, may place less of a cognitive demand on judges, in comparison to cue-poor situations (e.g., in low structure interviews) where little trait-relevant information is elicited (i.e., they lack

[5] Effects reported are observed correlations and have not been corrected for unreliability, nor for restriction of range, unless stated otherwise.

[6] We wish to acknowledge an anonymous reviewer that noted moderator effects tend to be very small and hard to detect, and that the search for moderators is often fruitless (Murphy & Russell, 2017).

'good information'; Funder, 2012). As such, we expect that intelligence would be a stronger predictor of accuracy in low-structure interviews (or other assessment contexts) as opposed to high-structure interviews. Likewise, in assessment centre judgments, information processing loads are higher than in interviews because multiple candidates are judged simultaneously, often on multiple dimensions, and also in varying situations (Melchers, Kleinmann, & Prinz, 2010; Melchers, Meyer, & Kleinmann, 2008). More complex judgment tasks may increase difficulty of detection and use of multiple cues. Therefore, intelligence may explain accuracy better in high-complexity tasks as compared to low-complexity tasks. Future studies could consider varying task complexity by manipulating aspects of the rating design, such as rating stimuli (e.g. vignettes, videos vs. live people, ordered from less to more complex), or number of targets rated (e.g. single, typical in interviews vs. multiple, typical in assessment centres). Researchers may thus want to explore the intelligence–accuracy link by considering variations of the rating context.

Finally, the effects of intelligence on rating quality in HR-settings might be underestimated. With few exceptions, all the studies reviewed here used college or university students, where restriction of range (see Nunnally & Bernstein, 1994) in ability-based measure scores is typical. So, the overuse of college samples might deflate the observed correlations reported. That is, intelligence may actually predict accuracy in general, non-college populations at a higher level than usually observed in college samples.

### 3.2. General characteristics: judges' personality, behavior, and motivation

There is a long tradition of studying the effects of broad personality traits as 'main effects' in earlier accuracy research. The conceptual arguments about how personality may affect accuracy (for an overview, see Christiansen et al., 2005; Funder, 1999) can be grouped into three streams, that is, those that consider how personality traits can directly influence perceptual processes, those that consider the actual behaviors of the judge when interacting with targets, and those where rating motivation is important. We discuss these three issues below.

#### 3.2.1. Personality traits

Judges' personality may regulate their social functioning in the workplace, including aspects of interpersonal judgment (e.g., Tziner, Murphy, Cleveland, Yavo, & Hayoon, 2008). In particular, personality traits may affect one's ability to form accurate impressions of others because conceptually they might be linked to the stages of information processing in RAM (i.e., cue detection and cue utilization). For example, agreeable individuals show more concern for others' feelings (Digman, 1990) and should, therefore, be more socially attuned to other individuals with whom they interact. Extraverts are known to seek out social interactions and, because of this increased social exposure, are likely to have more opportunity to hone their interpersonal judgments through practice and feedback (Costa & McCrae, 1992). Conscientiousness manifests itself in greater detail orientation (Goldberg, 1992) generally, but it may also affect how we form impressions about others. For example, highly conscientious judges are likely to be more attentive (than low-conscientious judges) in cue detection, and also show greater consistency in cue utilization. Finally, persons higher in openness are more inquiring and frequently enjoy working with abstract ideas or concepts (Goldberg, 1992) and as such, it is logical to expect that they are also more likely to actively develop mental representations of others' traits and behavior, seek patterns of consistencies and inconsistencies, and form and test hypotheses about others' behavior (see Kihlstrom & Hastie, 1997; Kruglanski & Ajzen, 1983). Openness may also be related to the social information processing preferences of judges because judges' need for cognition has explained accuracy of performance judgments in at least one study (Palmer & Feldman, 2005).

Despite their theoretical relevance to social interaction and judgment accuracy, these hypothesized links between personality and accuracy criteria have received little support (e.g., Borman, 1979; Borman & Hallam, 1991; Hjelle, 1969; Lippa & Dietz, 2000; Powell, 2008; Vogt & Colvin, 2003). Our review shows that empirical studies of personality (for a detailed list, see Table 1) have generally shown null or inconsistent findings. Overall, it appears that the accurate judge most likely does not score higher (or lower) on certain traits. That is, no trait seems to emerge as consistent predictor of accuracy. Even in studies that report 'significant' effects, these tend to be rather small (e.g., observed correlations $0.10 < r < 0.20$). As a case in point, Christiansen et al. (2005) found that, out of the Big Five factors and using three accuracy criterion measures (interview accuracy, acquaintance accuracy, overall accuracy), only openness showed a small to medium effect ($r = 0.23$, $p < .05$) with only one of the accuracy measures, namely interview accuracy. In fact, there are even some traits that may actually be *detrimental* to accuracy, for example being domineering ($-0.30$), vindictive ($-0.27$), cold ($-0.23$), intrusive ($-0.20$) (all from Letzring, 2008), and showing aggression ($-0.17$; Borman, 1979). Furthermore, judges who are less sociable may be more accurate (Ambady et al., 1995) compared to sociable individuals.

To tackle these disappointing findings, we suggest future research take the following issues into account. First, we should consider bandwidth issues. Some results suggest that personality traits may be more predictive of accuracy criteria when narrow traits are considered rather than broad traits (De Vries, De Vries, & Born, 2011; Powell & Bourdage, 2016). Second, as the bulk of earlier studies considered so-called 'bright' traits, more work is needed to consider 'dark' traits (Paulhus & Williams, 2002) of raters, for example, as possible derailers of accurate judgment. Third, we urge caution when interpreting the personality–accuracy literature. Some of the studies we surveyed are often plagued by high family-wise error rates as they combine multiple personality traits and behaviors (often $> 30$) and various operationalizations of accuracy (e.g., by relying on permutations of 'true-score' source, accuracy index, and so forth). As a result, very large correlation matrices may become 'empirical dragnets'. Although exploratory research of this nature is common in early stages of enquiry, they should not be the norm if we wish to build a solid and replicable research base (Asendorpf et al., 2013).

#### 3.2.2. Motivation

Rater motivation can be defined in terms of the basic goals or objectives that drive rating behavior which, in turn, is directed at

observation, storage, recall and integration of targets' behavior (Harris, 1994). Motivation is important because it can impact criterion-related validity of the predictors and the reliability of the ratings (Ispas, 2010). Rater motivation may be caused by raters' perceptions about rewards and reward probability, undesirable consequences, goals, and concerns about what others may think about one's ratings (Cleveland & Murphy, 1992; Harris, 1994; Murphy & Cleveland, 1995, 2004). From this perspective, motivation results from the perceived instrumental value of rating outcomes such as accuracy. According to RAM, when raters are motivated they should produce accurate ratings (Funder, 1999). More specifically, motivation may increase attention to behavior cues (e.g., studying others' behavior closely), a requirement for effective cue detection. Motivation may also encourage raters to assign greater cognitive resources to cue utilization (e.g., thinking deeply about what trait cues mean). This is especially important as rating occurs in a complex social context that is 'cue rich' (Levy & Williams, 2004).

However, some exceptions notwithstanding (e.g., Salvemini et al., 1993), empirical research shows that direct effects of motivation on accuracy are small or negligible (Ispas, 2010). Moreover, rating effort—a manifestation of rating motivation—does not appear to enhance accuracy (e.g., Borman, 1979). More research on motivational issues in rating is needed, though. First, the generalizability of the findings across HRM contexts is still unknown because earlier work was mostly conducted in studies of performance ratings. Therefore, findings may be different for selection and assessment ratings. Second, prior studies did not typically include direct motivation measures, but instead, relied on proxy measures (e.g., accountability; Brtek & Motowidlo, 2002; Mero & Motowidlo, 1995; Mero, Motowidlo, & Anna, 2003). A good place to start better understanding motivational influences on rating quality would be for studies to collect self-report rating motivation measures. To be useful, these measures might include aspects of accuracy motivation, rating effort, and perceptions of rewards, negative consequences, and impression management concerns (see Harris, 1994).

It is also important to note that not all judges are trying to be "good", that is, rating accuracy may not be the primary goal of raters (Spence & Keeping, 2011). Raters may be capable, but unwilling to rate accurately (Banks & Murphy, 1985). That is why a specific motivation, namely motivation to distort may enter the rating process—during the rendering phase, that is, when raters assign a rating on the appraisal form—when their attitudes to performance appraisal (Tziner & Murphy, 1999) or their idiosyncratic goals (Banks & Murphy, 1985) encourage them to assign systematically higher or lower ratings. That is why our model proposes that it is better to conceptualize motivation as a moderator between judgments and ratings, instead of a direct effect.

#### 3.2.3. Specific rater behaviors

Rater behavior is defined as the aggregate of manifest actions to elicit, observe, classify, and evaluate information about targets (e.g., interviewees). Accurate judges are not 'passive perceivers', but actively participate in interpersonal situations when forming impressions of others (Graves, 1993). Therefore, what judges actually *do* (when evaluating other people) may be more important than who they *are* (in terms of general personality traits).

So far, few studies have sought to explore the link between judges' behaviors and their judgment accuracy. It is likely that judges' behaviors affect the availability and relevance of cues. For example, in the personality literature, Letzring (2008) conducted an experimental study using unstructured interactions in triads of previously unacquainted students and found that students' judgment accuracy of their acquaintances was related to their social skills. More specifically, accurate judges emphasized others' accomplishments, engaged in constant eye contact, compared themselves to others, expressed warmth, enjoyed the interaction, displayed ambition, seemed interested, and expressed sympathy. These results imply that judges' social behaviors during interpersonal interactions are important for creating situations within which targets are likely to reveal relevant personality cues (Letzring, 2008). In the HRM domain, interviewer research can potentially benefit from this line of work.

Interestingly, this growing area of research has urged new elements to be introduced into RAM. As interviewers' behavior relates to eliciting cues from targets, by actively taking part in the social interaction, accurate raters may elicit more and better (relevant) cues from those being judged (Lievens, Schollaert, & Keen, 2015). As such, *cue elicitation* should be considered alongside existing judgment processes (i.e., cue detection and cue utilization) in future research, as depicted in our model (Fig. 1).

Overall, studies of the accurate judge should shift their emphasis away from personality traits and towards investigating the actual behaviors of the judge. For example, an unexplored avenue for research lies in judges' use of behavior prompts to actually test or confirm initial impressions of targets. Drawing on Kruglanski's lay epistemic theory of judgment (Kruglanski, 1990), judges may evaluate others through a cyclical process of hypothesis generation and hypothesis testing of an inferred profile of the target. So, an interviewer would use verbal prompts to confirm or disconfirm an initial 'impression hypothesis'. If so, the question then becomes how do raters employ specific behaviors (e.g., verbal and non-verbal) to test these impressions?

In addition, instead of examining judges' traits and behaviors in separation we could view them as related. Given that some personality traits affect preferences for social interactions (Goldberg, 1992), we may develop our ability to read others' behavior when we expose ourselves more to social interaction. For example, some traits (e.g., extraversion) encourage increased social experience, which, in turn, affords the judge the opportunity to develop accuracy faster than judges who have less social interaction. In other words, personality may influence accuracy through the mediating role of social interaction.

### 3.3. Specific characteristics: dispositional reasoning

Dispositional reasoning is defined as complex knowledge of traits, behaviors and the potential of situations to elicit traits into manifest behaviors (for a recent discussion, see De Kock, Lievens, & Born, 2015). This construct was originally introduced as dispositional intelligence by Christiansen et al. (2005), who defined it as "knowledge of personality and how it manifests in behavior" (p. 139). Dispositional reasoning has three components: *trait induction* (interviewers' understanding of which traits are signalled by

particular behaviors, *trait extrapolation* (the ability to understand how traits co-vary); and *trait contextualization* (an understanding of how situations manifest trait expression in behaviors). Dispositional reasoning is hierarchically ordered, that is, its three facets are influenced by a higher order underlying general construct (De Kock, Lievens, & Born, 2017).

Dispositional reasoning may allow accurate judges to process behavioral information towards accurate trait inferences. In the context of the RAM, induction and extrapolation may facilitate more accurate cue utilization given that judges are able to correctly identify a target's likely trait levels. Further, contextualization is important to make necessary adjustments to trait inferences in light of the situational context within which behaviors are observed. So, it may help to avoid misinterpreting others' actions (e.g., some degree of anxiety is normal in a high-stakes job interview, and most likely does not indicate neuroticism).

Although research on dispositional reasoning is still in its infancy, findings are promising: Christiansen et al. (2005) used a lab study where students ($N = 122$) watched videotaped segments of individuals responding to employment interview questions and judged the personality of the video interviewees. They also rated acquaintances who later completed self-report personality inventories. Results showed that dispositional reasoning was the best predictor of various accuracy indices (with $r$ ranging from 0.41 to 0.52), in fact, better than general mental ability and personality. In a similar study that included a training component, Powell (2008) found that dispositional reasoning correlated with Cronbach's differential accuracy scores in both the control group (0.34) as well as the training group (0.22). A recent partial replication (Powell & Bourdage, 2016) revealed that dispositional reasoning predicted (0.22) students' ability to infer the personality profiles of applicants depicted in video-taped interviews. Delving into the role of its components in judges' ability to produce quality ratings, De Kock et al. (2015) evaluated the three facets of dispositional reasoning as predictors of interviewers' accuracy for judging interview dimensions in high-structure interviews. Results showed evidence of differential prediction of the components: trait extrapolation (0.33), trait contextualization (0.26), and trait induction (0.14). Furthermore, the components incremented general cognitive ability to predict accuracy, indicating that they explain something about accuracy that is not only related to general intelligence. All four of these studies support the view that judges' dispositional reasoning may be an important determinant of people's accuracy of judging others' personality traits. Taken together, as compared to other assessor constructs, dispositional reasoning shows the highest (and most consistent) criterion-related validity (to predict accuracy outcomes).

In light of these findings, future accuracy studies should consider including measures of dispositional reasoning (e.g., the Revised Interpersonal Judgment Inventory; De Kock et al., 2015, 2017). Dispositional reasoning is especially promising to advance our understanding of what makes the an accurate judge given that it may help to uncover not only how judges process cues about targets (their behaviors and traits), but also the *situations* within which behaviors occur, as well as the interaction between persons and situations (De Kock, 2017; Lievens, 2017).

### 3.4. Specific characteristics: cognitive style and heuristics

Cognitive style is another more specific construct that refers to the unique ways in which raters may perceive or process behavioral stimuli (Witkin, Dyk, Faterson, Goodenough, & Karp, 1962). Earlier research has identified at least three classes of individual differences in cognitive style. First, selective attention is defined as “the ability to separately attend to the features of multidimensional stimuli” (Cardy & Kehoe, 1984; p. 589) and it is often measured with tests of field dependence-independence (e.g., the Hidden Figures Test; Thurstone, 1938). Second, raters may also differ in their cognitive heuristics, such as their implicit theories of performance (Cardy, Bernardin, Abbott, Senderak, & Taylor, 1987; Hauenstein & Alexander, 1991), which are related to ‘personal constructs’ (Borman, 1987) that “are likened to performance schemata and ‘folk theories’ of job performance”(p. 387). Third, the way that raters think about and evaluate the behavior of others— for example, when they employ idiosyncratic decision processes to evaluate information about applicants (Arvey & Campion, 1982; Graves & Karren, 1992; Ostroff & Ilgen, 1992) or differentially weight pieces of information about them (Dougherty, Ebert, & Callender, 1986; Kinicki, Lockwood, Hom, & Griffeth, 1990; Sackett & Hakel, 1979; Zedeck & Kafry, 1977)—may affect accuracy (Brehmer, 1994). Taken together, in the context of the RAM, elements of cognitive style are thought to influence accuracy through their effect on cue detection (e.g., through selective attention ability) and cue utilization (e.g., through differences in how information about others is assimilated on the basis of implicit performance theories or relative cue weighting).

The empirical evidence on cognitive style and heuristics is scant and has become dormant in recent times. Raters high on selective attention ability (Cardy & Kehoe, 1984; Lee, 1988) and those possessing a normative implicit theory of performance (i.e., their beliefs about required behaviors concurred with those contained in formal rating criteria; Hauenstein & Alexander, 1991) tend to be more accurate in their performance ratings. Clearly, we need a more solid empirical research base before firm conclusions may be drawn about the usefulness of cognitive style and heuristics to predict rating quality. One area for future research is to consider how different types of rater groups may be distinguished in terms of their cognitive style and heuristics. For example, managers and psychologists may differ not only in their implicit theories of performance, but also the relative importance they assign to particular behavior cues. This in turn may influence their relative ability to detect and use cues. Managers may have better developed implicit theories of performance, whereas psychologists may have superior abilities to attend to the right behaviour cues, for example. Studies that compare managers and psychologists on cognitive heuristics like selective perception ability and implicit theories of performance might advance our understanding of how cognitive styles and heuristics influence processes required to reach accuracy.

### 3.5. Specific characteristics: schema complexity

Schema complexity represents a further specific characteristic that may affect rating quality. Cognitive complexity (Bieri, 1955),

defined as "the degree to which a person possesses the ability to perceive behavior in a multidimensional manner"(Schneier, 1977, p. 541) draws upon personal construct theory (Kelly, 1955) and suggests that high-complexity raters prefer to differentiate more between people (and their dimensions) than low-complexity raters. This may facilitate cue utilization as it allows raters to identify the unique characteristics of targets, rather than seeing them as generally alike. Research has mostly failed to support the notion that cognitive complexity may influence accurate judgment (Adair, 1987; Bernardin, Cardy, & Carlyle, 1982; Borman, 1979; Gerber, 2013). However, measurement issues have plagued this line of work (Guion, 2011; Woehr, Miller, & Lane, 1998). For example, cognitive complexity measures are typically based on repertory-grid style measures where raters specify a few people they know well and evaluate these targets on a few dimensions. A 'complexity' score captures the degree to which they tend to differentiate between persons (across dimensions) and dimensions (across persons). The resulting indices may not have validity as indicators of *actual* complexity, as they may tap into typical evaluative tendencies, rather than the ability to perceive behavior in a multidimensional manner. As such, ability-based measures of cognitive complexity should be explored in future studies to explain differences in rater accuracy. Similar issues are encountered for a second type of schema complexity, so-called attributional complexity,[7] which is defined as the tendency to engage in complex social information processing and inferential reasoning (Fletcher, Danilovics, Fernandez, Peterson, & Reeder, 1986). The research base for attributional complexity as a predictor of accuracy is scant. One study (Fletcher, Grigg, & Bull, 1988) found that high-complexity raters made more accurate judgments of traits and attitudes, but others (e.g., Letzring, 2008; $-11 < r < 0.07$) did not replicate these findings (see also Davis, 1999). Similar to cognitive complexity measures, issues of operationalization prevent progress in this area as measures of attributional complexity are not ability-based measures, but rely on self-reports.

### 3.6. Specific characteristics: chronic accessibility

The chronic accessibility of constructs can be defined as the degree to which individuals differ in the readiness with which particular constructs are utilized in information processing of behavioral stimulus input (Higgins, King, & Mavin, 1982). For example, an interviewer with conscientiousness as a chronically accessible trait would more readily employ it to identify and categorize others' behaviors than using other traits (e.g., extroversion, if it is not equally 'accessible').

In the context of the RAM, construct accessibility may influence both the detection and utilization of cues. When raters evaluate others, chronically accessible constructs act as perceptual filters that influence which behavior cues are detected and perceived. As a result, raters are more likely to process and retain behaviors (e.g., which they see in an interview) that are related to their accessible constructs, compared to behaviors that are related to inaccessible constructs (Srull & Wyer, 1979). In other words, construct accessibility affects the storage, encoding and retrieval of behavioral information (Bargh & Thein, 1985; Srull, 1981, 1983). Construct accessibility may affect accuracy because it influences perceptual selection (Higgins, et al., 1982) as individuals with accessible constructs are more sensitive (than individuals with inaccessible constructs) to stimuli associated with those constructs (Bargh & Pratto, 1986).

Overall, chronic accessibility is a relatively unexplored predictor of rating quality in HRM. Woehr (1992) showed that chronically accessible constructs may not only affect the degree to which performance-related dimensions are accessible for use, but also that performance ratings will be more accurate if the performance dimensions are accessible to a rater. Construct accessibility deserves more research attention, especially in the domain of personnel selection. Such investigations hold potential practical benefits. For example, interviewers may be trained to become aware of their chronically inaccessible traits, because these may act as perceptual 'blind spots'—traits for which interviewers easily fail to detect corresponding behavior cues. As another application, interviewers with a particular chronically accessible trait may be employed as a 'trait expert' to rate specific traits in an interview.

### 3.7. Specific characteristics: behavior observation ability and behavior memory

Behavior observation ability denotes the ability to detect behavior cues as soon as they are emitted, whereas behavior memory refers to the capacity to recall observed behaviors following the rating task. Although most studies of 'behavior accuracy' (e.g., Lewis, 2002; Middendorf & Macan, 2002; Murphy & Balzer, 1986; Murphy, Garcia, Kerkar, Martin, & Balzer, 1982; Sanchez & De La Torre, 1996; Sulsky & Balzer, 1988) seem to confound behavior detection with behavior recall, these are two distinct abilities that each may help to deepen our understanding of judgment processes as proposed by RAM. To be accurate, raters must first detect manifestations of traits (Funder, 1999) (or other target dimensions) to pass this information on to cue utilization functions. Observation of ratees' behavior is the first task in producing judgments about performance (Borman & Hallam, 1991). More specifically, observation ability is similar to cue detection in RAM (Funder, 1995). Some raters may have greater sensitivity to detect verbal and non-verbal stimuli when these occur, whereas other raters may be oblivious to subtle cue signals as they happen.

Behavior observation ability is important because it affects encoding of behaviors—and subsequent storage and recall— into memory. In this way, behavior observation ability largely determines the quality of information cues available to judges (for cue utilization). In turn, behavior memory depends on the effective storage and recall of information about targets (e.g., see person-memory models proposed in Srull & Wyer, 1989). Together, both behavior observation ability and behavior memory may facilitate

[7] Although related, attributional complexity focuses on attributions for others' behavior (e.g., thinking of reasons why a colleague sent a rude email), while cognitive complexity focuses on raters' evaluative tendencies (e.g., a manager distinguishing between target persons on a given dimension).

cue detection and the availability of *good information* to the judge (Funder, 1999).

Surprisingly little research has studied behavior observation ability as a predictor of judgment accuracy, as earlier approaches used measures confounding detection and memory. These studies of 'behavior accuracy' show mixed support as some (e.g., Denisi & Peters, 1996; Murphy, Garcia, Kerkar, Martin, & Balzer, 1982; Rush, Phillips, & Lord, 1981) found positive effects, whereas others (e.g., Lewis, 2002; Middendorf & Macan, 2002; Murphy & Balzer, 1986; Sanchez & De La Torre, 1996; Sulsky & Balzer, 1988) reported trivial or no effects.

To advance work on behavior observation and memory, we propose two avenues that both seek to refine available measurement approaches. First, more thought should be given in future accuracy studies to use tasks that differentiate between behavior observation and behavior recall (Murphy, Martin, & Garcia, 1982). This is because some raters may be able to detect cues, but fail to remember them, whereas others can remember all cues (but failed to detect every cue objectively presented to them). For instance, pure tests of behavior observation ability may require raters to 'tag' behaviors (e.g., using a clicker) as they occur within a live stream of cues. These may be presented in video stimuli pre-coded by expert raters. Alternatively, raters may be asked to provide verbal protocols (e.g., with 'think-out-loud studies') while observing videotaped or live applicants. On their part, behavior memory tests could consist of showing video-clips of single behavior displays (including verbal and non-verbal content). Following a time delay (e.g., a 30-min delay may be typical in actual interviews) raters are then asked to list the behaviors they are able to recall. Future studies should distinguish between measures that evaluate raters' ability to detect behaviors from those that test their ability to recall having seen these behaviors.

Second, we suggest splitting memory measures based on *content type,* given that memories about people may be about their actual behaviors, and/or their abstract personality traits or dispositions (Srull & Wyer, 1989). By illustration, interviewers may recall things interviewees said (i.e., behavior memories), as well as the impressions about the applicant (i.e., trait or disposition memories) they recall. These memories may not overlap completely. In sum, we look forward to new research examining the differential and incremental validity (to predict rating quality) of the nuanced measures we propose here.

### 3.8. Demographic characteristics: rater gender

As men and women may differ in their ability to evaluate others, rater gender has been the most often-studied demographic variable predictor of rating quality. Hypotheses about gender differences in accuracy (e.g., that female judges are more accurate) have been driven by findings that show gender disparities in constructs that are thought to facilitate accuracy, for example, interpersonal sensitivity (Hall & Bernieri, 2001), a potentially important component in both cue detection and utilization.

However, research findings are not clear-cut. In some studies, female judges were more accurate than male judges (small-to-medium effects; Ambady et al., 1995; Carney, Colvin, & Hall, 2007; De Kock et al., 2015; Letzring, 2010; Schmid Mast, Bangerter, Bulliard, & Aerni, 2011; Vogt & Colvin, 2003), whereas other studies (e.g., Christiansen et al., 2005) showed no gender differences. Mixed findings in this area are also common (e.g., Chan, Rogers, Parisotto, & Biesanz, 2011; Letzring, 2008).

These inconsistencies may suggest the presence of moderator effects. For example, the trait being rated may moderate the effect of rater gender on accuracy outcomes. Female judges may outperform male judges at rating particular traits (e.g., extraversion and positive affect, Ambady et al., 1995; neuroticism, Lippa & Dietz, 2000; Schmid Mast et al., 2011; vulnerability to stress, Powell, 2008). Second, as women are generally more accurate as judges of non-verbal expressions of emotions (Hall & Schmid Mast, 2008), judgment stimuli may also moderate gender-effects on accuracy.

Future studies should attempt to develop stronger theories and hypotheses for gender-related effects on judgment processes and/or outcomes, rather than relying on surface-level demographic characteristics (e.g., gender) alone. For example, gender-related personality traits (e.g., measures of rater masculinity-femininity) should be explored as predictors of accuracy of certain but not other traits (Lippa & Dietz, 2000). Likewise, to the extent that masculinity-femininity affects sensitivity to others' behaviour cues, this gender-related trait may contribute to the ability to produce quality ratings (Hall & Schmid Mast, 2008).

### 3.9. Demographic characteristics: rating experience

Drawing from the model of work experience of Quiñones, Ford, and Teachout (1995), we define rating experience as the amount, time, and type of experience in rating other people at varying levels of specificity in the organization (e.g., task dimensions, job dimensions, team dimensions, organizational competencies, etc.). The ability to judge others in day-to-day life, and organizations in particular, should increase with age and experience (Fiske & Taylor, 2013), as repeated 'trial-and-error' in judging others may help us to refine our judgment schemas and heuristics. In the context of the RAM, correct cue utilization might be reinforced every time a judge makes a correct judgment (about somebody else's actions), with the result that schemas used for cue utilization are continuously shaped and refined using the ongoing feedback from observing behavioral outcomes (that eventually follow). In short, rating experience is derived from repeated practice.

Empirical studies showed that accuracy may be higher for judges with more experience (Kolk et al., 2002) but these effects may be rather small (e.g., uncorrected validitiy = 0.18; Wood & Marshall, 2008) or negligible (e.g., Borman, 1979). In one study, observational accuracy was actually lower for judges with more experience (−0.16; Borman & Hallam, 1991). Thus, the link between rater experience and accuracy is therefore not straightforward. In future studies, it may be important to take the type of experience (e.g., rating experience vs. job experience, see Quinones et al.) into account. Most prior studies have examined rating experience, rather than the actual job experience, as predictor of rating quality measures. In terms of RAM, managers with many years of on-the-job experience in a particular functional role (i.e., they have high job tenure) may be better at spotting the right cues (i.e., cue

detection) because they know what to look for, and are more likely to correctly use these cues to make dispositional inferences. In addition, experienced managers/psychologists may have developed relevant tacit knowledge about the most important predictors of performance within a particular job role. When they evaluate candidates against normative assessment criteria (i.e., interview dimensions contained in the rating materials), they are likely to employ their implicit theories developed through experience when evaluating candidates. So, we urge more research to uncover how particular types of experience (e.g., rating vs. job) may enhance different types of judgments (e.g., trait judgments vs. expectations about performance).

### 3.10. Demographic characteristics: culture/ethnicity

Raters' shared values, beliefs, and norms (i.e., culture) and/or ethnic affiliation may potentially affect rating quality in organizations, although it is an understudied area (e.g., Albright et al., 1997). This is relevant in an increasingly multicultural workplace where managers and employees routinely have to judge others across cultural/ethnic lines.

According to RAM, the effect of culture and ethnicity on accuracy processes—as is the case with other surface-level characteristics, like gender and age—may be mediated by deeper-level constructs (rather than showing direct effects in themselves). For example, collectivism (vs. individualism) is characterized by greater awareness of, and valuing of, relationships and interactions with others, which in the context of the RAM may allow for increased attention to cues emitted by other people. However, collectivism may also reduce accuracy as it implies less awareness of differences between individuals. Finally, dyadic similarity (in terms of culture/ethnicity) between judges and targets may lead to greater familiarity with the target's verbal and non-verbal behaviors, thereby facilitating cue detection and utilization. In fact, when rater-ratee pairs are matched in terms of gender and ethnicity, accuracy of personality judgments may be higher (Letzring, 2010).

Note that the emphasis in research on culture/ethnicity effects (e.g., Ng, Koh, Ang, Kennedy, & Chan, 2011) and dyadic similarity in culture/ethnicity (e.g., Sacco, Scheu, Ryan, & Schmitt, 2003) on rating outcomes has traditionally been on rating bias, with only a few studies that explored their effects on rating accuracy or validity. In one laboratory investigation of cultural factors and accuracy (Paquet, 2005) students evaluated the lecturing skills of teaching assistants. Results showed that students' level of collectivistic orientation was related to lower accuracy. If these findings involving student evaluations at universities generalize to the field of HRM (e.g., in 360-degree evaluations), they may have important consequences for rating quality in organizations with multicultural workforces. As this topic area is ripe for more research, we recommend therefore to also scrutinize the effects on rating accuracy outcomes.

### 3.11. Demographic characteristics: rater age

Rater age may contribute to rating accuracy processes and outcomes for the same reasons as experience. Given that interpersonal judgment accuracy tends to develop across the lifespan (see Fiske & Taylor, 2013) it is not clear why empirical findings so far show that raters' chronological age may be unrelated to accuracy (e.g., Borman, 1979). The paucity of empirical research in this area means that more research is needed before firm conclusions are possible.

### 3.12. Other characteristics

Various other individual difference constructs have been explored in rating quality research, although findings are not promising. For example, vocational interests (e.g., Holland's six interest types, 1973) were poor predictors of accuracy criteria in one study (e.g., Borman, 1979). Likewise, findings on rater attitudes (e.g., life satisfaction) produced inconsistent results in two unpublished dissertation studies (Gibson, 2006; Hartog, 1991).

### 3.13. Meta-analytic summary

We conducted bare-bones psychometric meta-analysis (as described by Schmidt & Hunter, 2014) for effects reported for variables that had a sizable number of samples, namely cognitive variables (general cognitive ability and dispositional reasoning) and Big 5 personality traits. Meta-analytic results are shown in Table 2. Results showed that cognitive variables were more strongly related to rating quality measures ($\bar{r}$ = 0.24, 80% credibility interval [CV] 0.09, 0.38) than Big 5 personality traits ($\bar{r}$ = 0.04, CV -0.05, 0.14). The following rater individual differences showed 90% CI that did not include zero, in order of their criterion-related validity (to predict rating quality criteria): dispositional reasoning ($\bar{r}$ = 0.31), cognitive ability ($\bar{r}$ = 0.18), openness to experience ($\bar{r}$ = 0.10), and agreeableness ($\bar{r}$ = 0.09).

## 4. Discussion

In light of the pivotal importance of judgments and ratings in traditional and recent HRM areas (interviews, assessment centres and performance evaluations, video resumes, social media evaluations, etc.), a better understanding of the individual difference constructs associated with an accurate judge is needed. Unfortunately, the typical designs used in social psychological research lack the external validity to draw generalizable conclusions. Therefore, one objective was to review the available body of HRM research. We synthesized the literature into a model (see Fig. 1) that answers earlier calls (see Jones & Born, 2008) to explain how assessor constructs facilitate specific judgment processes. Distinguishing features of our model were that (1) it linked rater individual

differences to key judgment processes (namely cue detection and cue utilization) thought to result in accuracy (RAM) (Funder, 1999) and (2) included the notion that due to the HRM context and raters' motivation to distort, their judgements might not always converge with their ratings. This is important because studies of rating quality generally do not distinguish operationally between judgments and ratings. As a second objective, we also aim to promote new research avenues in the field of individual differences related to judging and rating in HRM. In this final section, we therefore outline various implications for future research and propose 20 research questions (see Table 3).

### 4.1. The importance of cognitive factors

Overall, our meta-analytic estimates show that cognitive factors seem to play an important role in rating quality. For example, the accurate judge is generally more intelligent (than less accurate judges) – one of the more consistent findings in this area of research. Our review shows that effect sizes for cognitive factors are moderate and these appear to be relatively stable in laboratory studies. By virtue of better processing of behavioral information (i.e., encoding, storage, and recall) accurate judges are able to form accurate impressions of targets (e.g., interview applicants, AC candidates, employees).

In addition to having higher levels of general intelligence, accurate judges may also show more developed specific abilities. A growing stream of literature on dispositional reasoning suggests that accurate raters are adept at dealing with social information in particular, that is, they have well-developed schemata about behaviors, underlying traits, and the role of situations in trait expression. In our view, specific abilities of the accurate judge, like dispositional reasoning, hold great potential to help us better understand accuracy.

### 4.2. The personality paradox

The accurate judge does not seem to score significantly higher or lower than others on any particular personality trait. None of the broad Big Five traits are consistent predictors of accuracy in HRM, according to our review and meta-analytic summary. Effects tend to be trivial in studies where these reach significance and results suggest that, with the exception of openness to experience and agreeableness (which in our meta-analysis both showed ‘small’ effects; Cohen, 1988), traits are not important to shape rating quality. It seems therefore ironic that personality traits of the judge do not appear to be influential in rating outcomes, but rather, their *understanding* of personality (i.e., in the form of dispositional reasoning) may be important.

Future work on personality predictors should delve deeper into areas where closer conceptual alignment exists between a judge's personality and rating tasks in HRM. For example, narrow traits (as opposed to broad traits) that are socially-oriented may be useful as predictors of accuracy, because narrow traits have the advantage of higher fidelity for predicting closely matched criteria (Soto & John, 2017). In particular, a fruitful approach may be to shift attention away from understanding the role of general traits of the judge in ratings, to explore more closely their specific behaviors when evaluating others in the rating context. For example, how do accurate judges elicit better information from targets in various stages of a selection interview? Furthermore, what do accurate judges do to ensure better detection of cues displayed by the candidate? For example, do they demonstrate various identifiable behaviors not yet studied in earlier research (e.g., showing particular gaze patterns to scan for diagnostic non-verbal behavior cues, listening strategies, and note-taking strategies)?

Another direction consists of investigating how personality may *moderate* the influence of other individual differences constructs on rating quality. For example, Christiansen et al. (2005) demonstrated that interviewers' conscientiousness and agreeableness moderated the relationship between dispositional intelligence and acquaintance accuracy. When interviewers' elevation on these two traits was high, dispositional intelligence predicted acquaintance accuracy better than when elevation on these traits was low. Openness to experience also tends to correlate with measures of cognitive ability (Ackerman & Heggestad, 1997), a characteristic which promotes higher accuracy.

### 4.3. Motivation to distort and HRM context effects

A further key direction is whether being an accurate judge is a stable individual difference, or whether there are also situational factors at play so that a particular individual might be good in some judgment tasks and bad in others. The context variable in our model accounts for these situational factors and deserves much more attention in future research on the accurate judge. As noted, in some contexts (performance appraisal), accuracy might not be the primary consideration of a judge (supervisor). Accordingly, (s)he might be a good interviewer and assessor but not so in performance appraisals. One reason for these contextual effects might be motivation to distort ratings. For example, supervisors who wish to advance their own political goals may intentionally inflate ratings to ratees under their supervision (Spence & Keeping, 2011). Unfortunately, so far few studies have been conducted about the “motivation to distort” variable. Therefore, more work is needed to determine its prevalence and understand the conditions under which rating distortion occurs.

Note that, so far, social and personality research (in which due to the low stakes context the motivation to distort plays little role) has shown that the ability to judge others' emotions may generalize to the ability to judge others' personality traits (Hall, Gunnery, Letzring, Carney, & Colvin, 2016). Therefore, one area that deserves particular attention is whether or not judges who are good at evaluating people in traditional contexts (e.g., interviews, ACs, performance appraisal) are also good at evaluating other people from social media information.

### 4.4. Are emotional and social intelligence 'missing in action'?

We encourage more work on other rater characteristics that show strong conceptual overlap with the difficult task of seeking and assimilating behavioral information when evaluating people in HRM. These include emotional intelligence and social intelligence (see Lievens & Chan, 2010). Given that interpersonal interaction in the work environment makes it inherently social, it follows that the ability to interpret social information may facilitate understanding others' behavior as they occur within situational contexts (Lievens, 2017).

Despite their potential importance, so far both constructs have been conspicuously absent from rating quality research. Hence, we call for research into their effects. In addition, we need to explore their discriminant validity[8] (and incremental validity) related to established predictors of rating quality (e.g., dispositional reasoning and general mental ability). Overall, we suggest that these three constructs (dispositional reasoning, emotional intelligence, and general intelligence) should be given attention in combination in future theory development, because their conceptual linkage with the judgment processes in RAM is compelling. Other promising individual differences in the domain of emotional and social intelligence include the tendency to perspective-take and empathic concern (Colman, Letzring, & Biesanz, 2017).

### 4.5. The judge as an active cue elicitator

Our review has identified potential extensions of Funder's RAM. RAM was built on the basis of models that describe how people perceive physical objects (e.g., Brunswik's Lens model; Brunswik, 1956) and, as such, it implies a view of the judge as a more passive observer, waiting to pick up on behavior signals to be used in impression formation. In contrast, a growing line of research (e.g., Letzring, 2008; Lievens et al., 2015) suggests that when interacting with targets, good interviewers actively *elicit* good behavioral cue information, by encouraging the target (interviewee) to express useful trait-relevant information. To this end, they employ interpersonal skills (for example, active listening or non-verbal communication) to put the interviewee at ease, draw out more information, reflect non-verbal signals, etc. Lievens et al. (2015) demonstrated that high accuracy in assessment center ratings was due to role-players that were effective at both eliciting and evaluating candidate behavior, suggesting that cue elicitation may work in tandem with other judgment processes (e.g., cue detection and cue utilization). These findings suggest the need to include *cue elicitation* in the RAM (as demonstrated in Fig. 1) for enhancing the availability and relevance of cues available to the judge. In future research, we should determine how interviewers and assessors manage the interpersonal interaction (both in the relationship-building and questioning stage of the interview) to elicit useful behavioral data for their judgments. Experimental studies that consider the main and interactive effects of interviewers' cue elicitation, cue detection, and cue utilization (see Funder, 1999) are useful here, given that these processes were mostly treated in isolation in earlier investigations.

### 4.6. Towards better understanding of cue detection

As the traditional focus has been on how judges use cues, rather than how (and if) they are able to detect them, assessor constructs that may enhance cue detection represent an area that is ripe for more study. In line with the notion of 'garbage in, garbage out', the quality of cue utilization (and resulting judgments) is predetermined by the quality of cues detected by the judge. We expect that judges that are cue sensitive are able to pick up on both verbal (e.g., detecting fine variations in applicants' speech patterns and tone of voice) and non-verbal (e.g., reading micro-expressions on AC candidates' faces) stimuli as soon as they occur. To study these issues in HRM settings, we could draw on other fields where non-verbal cues (and what they may mean about underlying dimensions) are often studied, for example judging emotions and affect (e.g., Davis & Kraus, 1997; Hall, Andrzejewski, & Yopchick, 2009) or judging personality from facial expressions (Borkenau, Brecke, Möttig, & Paelecke, 2009). Conceptually, rater constructs that could support better cue detection may include oral comprehension (e.g., to understand a high load of complex verbal stimuli), conscientiousness (e.g., to remain attentive throughout lengthy interviews), and non-verbal visual sensitivity (e.g., to identify subtle body-language and facial expressions).

### 4.7. Implications for HRM practice

Our review generates two promising ways to advance rater selection and rater training. First, our results suggest that organizations might consider using cognitive ability measures to select raters (e.g., interviewers, assessors and performance evaluators) because these measures predict rating quality and are therefore 'job-relevant'. In addition, dispositional reasoning shows promising results as single and incremental predictors of accuracy. The validities in some studies approach those for predicting job performance (Schmidt & Hunter, 1998). Therefore, dispositional reasoning and the readily available inventories for measuring it provide organizations with a straightforward approach for rater selection. That said, practical constraints need to be acknowledged. For example, in performance appraisal "accuracy" might not always be the primary objective of supervisors (Spence & Keeping, 2011) and we often cannot choose judges on the basis of these individual differences because there may only be one person (supervisor) able to provide ratings.

[8] As an anonymous reviewer pointed out there is overlap between components of dispositional reasoning and components of emotional intelligence (Mayer, Salovey, & Caruso, 2004).

As a second practical implication, one should consider targeting the constructs that predict rating quality with training. The dominant approach to rater training is frame-of-reference (FOR) training, which seeks to impose a common evaluation standard and reduce rater idiosyncracy by shaping rater schemas about the dimensions and effectiveness levels to be judged (Roch et al., 2012). However, FOR can also potentially be used to develop the dispositional reasoning components. Yet, the viability of this practical implication depends on whether dispositional reasoning components are malleable. This speaks to the key question as to whether or not the accurate judge is born, or made? So far, attempts to enhance one of the components of dispositional reasoning, to understand behavior-trait links ('induction'), have been unsuccessful (Powell & Bourdage, 2016; Powell & Goffin, 2009). So, before trainings in organizations to develop dispositional reasoning can be recommended, evidence is required to show that it can be developed.

Finally, a broader question is whether accuracy should be the ultimate criterion in settings such as performance appraisal, given the role of appraisals in HRM to help organizations improve performance and create and maintain competitive advantage (DeNisi & Pritchard, 2006; Denisi & Sonesh, 2011). Appraisal ratings should also meet other important needs, including to enhance relationships between supervisors and ratees, be acceptable to ratees, and help facilitate better decisions (Schleicher et al., 2018). Although judgment accuracy is not a *sufficient* condition for these additional outcomes, we see it as one of the *necessary* conditions to create the context in which appraisal ratings can better serve their purpose. Along these lines, future research should determine in which stage of our model machine-learning (algorithms) is most useful to avoid potential biases and improve rating quality. If human judges and "machines" are going to work together for rating purposes in the future, we need to examine whether a substitute, complementary or supplementary approach is the best and under which conditions and in which contexts.

## 5. Conclusion

Through the ebbs and flows in the HR domain over the last century, the question of 'what makes the good judge?' has endured. Our model (portrayed in Fig. 1) integrates important rater individual differences into a framework that explains how these characteristics may drive key judgment processes that influence rating quality. Cognitive factors (general intelligence and dispositional reasoning) related to the accurate judge showed stronger and more consistent relationships with rating accuracy than personality-related factors. Importantly, our review highlights the scarcity of research on HRM context (selection vs. performance appraisal settings) and judges' motivation to distort ratings. We invite HRM researchers and practitioners to join the search for accurate judges because it holds a lot of potential to enhance rating quality via better rater screening and training. It might also pave the way for integrating human and algorithm-based approaches to judging and rating people.

## Acknowledgement

This work was supported by the Andrew W. Mellon Foundation, New York, USA, and the National Research Foundation, Pretoria, South Africa.

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