The Lens Model: An Application of JDM Methodologies to IOOB Practice

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Dalal et al. (2010) discuss many avenues for blending judgment and decision making (JDM) with industrial–organizational psychology and organizational behavior (IOOB). This commentary describes how the lens model, policy capturing, and cognitive feedback can be useful to IOOB practice. We demonstrate their utility by including examples of the use of these methods in various IOOB settings.

The Lens Model

The psychologist Egon Brunswik introduced probabilistic functionalism to describe the process by which behaviors oriented toward achieving a goal (i.e., functionalism) are accomplished in an uncertain (i.e., probabilistic) environment. Building on this seminal work, Hammond’s Social Judgment Theory extended Brunswik’s theory to the study of human judgment (Goldstein, 2004; Hammond, 1955). Embedded in this work is the lens model that helps one understand judgments by comparing pieces of information with known validities to how those pieces of information are used in forming a judgment. For example, the lens model can be used to help understand a selection decision by comparing the decision maker’s judgment based on different pieces of selection information (e.g., test scores and interview ratings) to the “optimal” hiring decision based on information with known validities (see also, Doherty, 2007a).

The main components of the lens model are depicted in Figure 1 (adapted from Goldstein, 2004). The lens model represents both a specific environment and a judge. The multiple pieces of information used in predicting a criterion (Ye) are depicted in the center of the figure (e.g., X1 and X2) and are known as cues. In a selection setting, cues could represent performance on different selection tools used (e.g., test scores and interview ratings), and the criterion is success on the job. The relationship of each cue to the criterion (e.g., r_{e1} and r_{e2}) can be thought of as the validity of that cue. Therefore, the environment side of the lens model represents what the selection decision should be resulting from appropriately weighting the cues given the varying validities. The multiple cues may also be used by the selection decision maker to form a judgment (Y_{e}). In other words, the judge side of the figure outlines how the pieces of information are utilized by the decision maker to come to the hiring decision. The relationship between a cue and the judge’s judgment (e.g., r_{j1} and r_{j2}) indicates how
Figure 1. The lens model adapted for judgments (Adapted from Goldstein, 2004).
series of cues with known relations (e.g., GRE scores and college GPA to predict first-year GPA in graduate school). Another approach is to determine the criterion from subject matter experts, as done in a lens model study by Roose and Doherty (1976). In their study, 16 insurance agency managers evaluated two hundred 64-cue profiles abstracted from the personnel files of a large insurance company. The environmental criterion was “success” after 1 year as defined by the company. Managers’ policies differed considerably from each other, and managers were poor at predicting success. However, an equation determined from the known validities of a subset of cues was modestly predictive of success, and recommendations were made to the company. In addition, see Balke, Hammond, and Meyer (1973) for an application of the lens model to improving labor negotiations.

**Application 2: Policy Capturing**

One of the more well-known applications of social judgment theory is policy capturing, which can be used in workplace settings where knowledge of the environment is either absent or unimportant. Policy capturing focuses on the “right” side of the lens model, providing the IOOB practitioner with information about how judges use cues independent of how the cues are related to an environmental criterion. For example, the IOOB practitioner could design a policy-capturing study to determine what cues a manager is using when making a judgment (e.g., when hiring a new employee). Furthermore, the IOOB practitioner can compare policies of different decision makers, or aggregate individual policies across decision makers, to uncover those cues that are weighted consistently. The use of policy capturing in IOOB was outlined by Dalal et al., referencing two widely cited policy-capturing studies (i.e., Judge & Bretz, 1992; Rotundo & Sackett, 2002). The judgment policies of the different participants reveal how the use of cue information is similar or different across the judges. Policy capturing has been used in many applied settings to study existing judgment behavior or examine the effect of judge or task characteristics on judgment. Roose and Doherty (1978) conducted a university-sponsored study to investigate claims of gender discrimination in faculty salaries. Survey data were gathered on the accomplishments of 349 faculty respondents, from which 175 were randomly sampled to develop faculty profiles based on 28 cues, not including gender. Forty-two faculty members independently assigned “fair” salaries to the 175 profiles, resulting in 42 policy equations. The aggregate policy, established independent of faculty gender, was used to predict fair salaries for faculty members. That policy was shared with the university vice president to identify the faculty whose actual salaries were significantly lower than their predicted salaries.

Another example of how policy capturing can be used by IOOB practitioners deals with reaching group consensus. One author (Balzer) conducted a policy-capturing study to assist the college deans in prioritizing capital planning projects across their different areas. The policy-capturing process (identifying the relevant cues to use when prioritizing capital improvements, assigning cue values for each of the proposed capital projects, etc.) and rating task (making judgments on a few profiles that varied on seven cues, to provide a foundation for establishing each dean’s self-identified policy) resulted in a transparent discussion and consensus policy on how capital planning projects should be prioritized. This policy resulted in a list of prioritized projects, which the deans unanimously recommended to the senior administration. In addition, see Maniscalco, Doherty, and Ullman (1980) for an application of policy capturing to assessing potential discrimination in graduate school admissions.

**Application 3: Cognitive Feedback**

An extended use of the lens model is to provide individuals with feedback about their judgments and insight helpful for
understanding, modifying, and improving future judgments. The IOOB practitioner can use cognitive feedback (CFB), which focuses on providing judges with information about the judgment process (e.g., weighting of Cue A compared with validity of Cue A). CFB has been shown to be more effective in improving judgments than outcome feedback (i.e., providing the actual outcome in the environment to the judge after the response; Balzer, Doherty, & O’Connor, 1989). A CFB study provides three distinct components of feedback: task information (TI), or information about the validities of the cues; cognitive information (CI), or information about cue weighting; and functional validity information (FVI), or information about achievement. Research has shown that TI is the most important component of CFB for improving judgment performance (Balzer et al., 1989, 1994). In policy-capturing studies, CFB is limited to only providing CI, which can still be very helpful for improving self-insight and consistency in weighting cues as well as facilitating discussion of policies across multiple judges.

Suppose an IOOB consultant is asked to improve an organization’s selection interview process. CFB can be used to show interviewers how they are currently weighting versus how they should be weighting the different dimensions of interviewees’ performance when forming an overall judgment. CFB can also be used to teach performance raters to weight the different dimensions of employees’ performance according to the dimensions’ validities with some external measure of performance (e.g., total sales) or the company’s stated policy (e.g., quality over quantity of performance) when assigning performance ratings.

Given that a problem of holistic judgments is the inconsistency of applying weights (Highhouse, 2008), CI can help judges understand their weights and help them apply those weights consistently. CI is also useful for helping performance evaluators identify rater errors. Balzer et al. (1989) suggested that the correlations of a distribution of ratings with performance dimensions can provide evidence of leniency, central tendency, halo, and other rating errors.

Finally, FVI is useful for providing judges with information about the validity of their judgments. This type of feedback is useful for all applications of IOOB applied work where a practitioner has to compare a specific judgment to a clear external criterion. Giving FVI in conjunction with CI and/or TI can provide valuable judgment information related to selection decisions, assessment center ratings, and performance ratings, to name a few.

Some Issues to Overcome

Although the lens model, policy capturing, and cognitive feedback provide practical extensions of JDM to applied IOOB work, practitioners must consider several issues before applying them. For example, the number of judgment profiles that must be judged to achieve a stable regression model of the judge’s policy is substantial (usually a minimum of 10 profiles per cue). In situations with many potentially important cues, a judge may need to evaluate 200+ profiles to capture a stable policy. Furthermore, stimulus sampling and representative design considerations could increase the time necessary in the design phase of an applied project. Some unpublished work by one of the authors (Balzer) suggests that adequate self-insight into judgment policy can be obtained without conducting a full lens model or policy-capturing study. Self-insight into cue utilization weights, and whether each of the cue-judgment relations was linear or nonlinear, was significantly better after judges rated as few as 10 cue profiles. The possibility for judges to obtain insight from a reduced number of profiles makes it easier for practitioners to apply these methods.

In conclusion, we concur with Dalal et al. that there are many avenues for blending JDM and IOOB and believe that applying the lens model, policy capturing, and cognitive feedback to applied work can enhance this cross-fertilization. The examples presented demonstrate the
broader applications of these JDM methodologies to IOOB practice, providing greater insight into the psychology of human judgment that is ubiquitous in the workplace.

References


