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A Framework of Potential Sources of Inaccuracy in Job Analysis

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Job analysis forms the foundation upon which virtually all human resource management systems are built. Although the validity of job analysis information is rarely questioned (Harvey, 1991), job analyses are often based completely on human judgment (Goldstein, Zedeck, & Schneider, 1993). This is problematic because a considerable body of psychological research has demonstrated that human judgment is fallible and subject to considerable inaccuracy. The implications of this for job analysis are clear: Inaccuracies can have profound effects on job analyses and the subsequent human resource management systems arising from job analysis data.

The purpose of this chapter is to describe some situations that might occur when conducting a job analysis and highlight how the job analysis could be affected by systematic sources of inaccuracy. We then outline a framework of job analysis accuracy more fully described in Morgeson and Campion (1997). The framework is shown in Table 30.1. The two primary sources of inaccuracy are social and cognitive in nature. Social sources of inaccuracy reflect the fact that individuals exist in a social environment that produces pressures for certain kinds of behaviors. Cognitive sources, on the other hand, reflect the fact that individuals have distinct limitations when they process information.

These different sources of inaccuracy have six different effects on job analysis data, and these effects represent the domain of inaccuracy in the present framework. They are interrater reliability, interrater agreement, discriminability between jobs, dimensionality of factor structures, mean ratings, and completeness of job information. These effects reflect underlying issues of reliability (e.g., reliability and agreement; see also Dierdorff & Wilson, 2003) and validity (e.g., discriminability, dimensionality, mean ratings, and completeness) in job analysis data. The form of these effects will depend on the source of inaccuracy. Higher as well as lower levels of these effects could indicate inaccuracy. Thus, some presumed measures of job information quality, such as reliability and agreement, might be artificially inflated by certain sources of inaccuracy (e.g., conformity pressure).

QUALITATIVE REVIEW OF FRAMEWORK WITH JOB ANALYSIS EXPERTS

After an early version of this framework was completed, it was sent to 32 job analysis academics, consultants, and other experts to solicit feedback. Interviews, ranging from 15 to 60 minutes

Table 30.1 Social and Cognitive Sources of Inaccuracy on Job Analysis Data

Social sources of inaccuracy
A. *Social influence processes*
1. Conformity pressures
2. Extremity shifts
3. Motivation loss
B. *Self-presentation processes*
4. Impression management
5. Social desirability
6. Demand effects
Cognitive sources of inaccuracy
C. *Limitations in information processing*
7. Information overload
8. Heuristics
9. Categorization
D. *Biases in information processing*
10. Carelessness
11. Extraneous information
12. Inadequate information
13. Primacy/recency and contrast effects
14. Halo
15. Leniency and severity
16. Method effects

(approximately 35-minute average), were subsequently conducted with 26 individuals with respect to three broad issues: (a) their overall reaction to the framework, (b) examples that exemplify these errors, and (c) deficiency or contamination in the framework. The experts provided a wealth of information, with concrete feedback on the framework, examples that highlight many of the errors we had identified, and a number of additional considerations we had overlooked.

We undertook this extra "reality check" step to make certain that what we were developing was actually happening in job analysis practice. Fortunately, virtually all of the errors we had identified were recognized by the experts as relevant for job analysis, both from a theoretical and practical perspective. They see these errors in the course of conducting their job analyses, and many found our framework a useful way to describe and categorize the errors. Brief samples of some of the more general comments that relate to our framework are as follows.

With respect to impression management, one of the experts noted that he could never recall a time where he interviewed someone that they did not ask how the job evaluation would affect pay. Similarly, another expert noted that the efficiency experts have preceded the job analysts in terms of contact with organizational members. As a consequence, individuals are worried about losing their jobs and tend to inflate their job ratings. Both examples illustrate that individuals are often acutely aware of the use to which job analysis information is put and may systematically distort their responses. Another expert noted that in his experience, particularly in civil service/public sector positions, jobs become categorized according to an existing system that is known by the employees and this system drives job classification. That is, individuals are well aware of how jobs are classified in the organization and what is rewarded. This influences their

information processing in terms of what they consider important and what they report when interviewed. This highlights how seemingly innocuous distal factors can affect the reporting of job tasks.

EXAMPLES OF HOW JOB ANALYSIS INACCURACY MAY MANIFEST ITSELF

As these examples suggest, job analysis inaccuracy can manifest itself in many different ways. To illustrate how inaccuracies might arise during job analysis data collection, we have developed the following three scenarios built on our own experience and the comments of the job analysis experts.

Job analyses are often conducted for the purpose of determining compensation levels (commonly referred to as job evaluations). Regardless of whether they are told the purpose of the job analysis, respondents are often aware that their responses have pay implications. As such, they may choose to exaggerate their responses. For example, the amount of supervision is often an important compensable factor. Although a given job analysis respondent might only supervise a secretary and student interns and others only on a project basis, they are likely to overestimate the amount of supervision they perform to positively impact the value of their job. If unchecked, this could upwardly bias the compensation level for the job, costing the organization additional money.

Job analysis information is often collected in group settings from subject matter experts (SMEs). The nature of these settings may produce some level of opinion conformity. For example, during a group meeting the discussion may turn to the importance of teamwork. One participant might know that teamwork is a major "buzzword" in the organization, although she has not really seen any increase in teamwork on her job. Nonetheless, she is likely to go along with the group with the conclusion that teamwork is important because she thinks it is the expected answer. If this occurs, some job aspects may be identified as important when they really are not.

Job analysis questionnaires are commonly used to collect information about job tasks. Unfortunately, these questionnaires are often long and tedious to complete, potentially affecting the accuracy of the data that is obtained. For example, at the end of the day a group of job incumbents might be required to come to a conference room and fill out some forms for "Personnel." The form turns out to be a 12-page, 300-item task survey that requires ratings on importance, time spent, and needed at entry. The purpose of the form may seem unclear and all the items might sound the same to the respondents. It basically seems like more busywork from Personnel. In addition, completing the questionnaire is all that stands in the way of "Miller Time." Consequently, the respondent circles answers as quickly as possible without really reading the items. If all respondents are responding similarly, the reliability and validity of the resulting information is likely to be low.

These hypothetical examples demonstrate how various aspects of job analysis may affect the accuracy of the data that is collected. Therefore, it is important to try to understand the social and cognitive influences on job analysis accuracy.

SOCIAL SOURCES OF INACCURACY

Social Influence Processes

Conformity Pressures

Considerable research suggests that groups exert considerable influence to reach judgment consensus (Deutsch & Gerard, 1955; Hackman, 1992). Conformity is likely to occur in SME committees if members adhere to a perceived group opinion. These committees often have implicit or explicit

rules requiring the group to achieve unanimity, increasing the likelihood of conformity. This may reduce the accuracy of job analysis information by causing individuals to respond in a manner that differs from their own opinion.

Many factors could potentially influence conformity. For example, the status of various committee members may influence the level of conformity (Sackett & Wilson, 1982), with more conformity exhibited by lower status group members. In addition, the use of exchange tactics (e.g., suggesting that the sooner the group reaches agreement, the sooner they will get finished) is likely to result in members conforming or acquiescing. Finally, the evaluation of jobs is driven (in part) by conformity to organizational norms. For example, if the organization is focusing on teamwork-related competencies, these competencies may be overstated in terms of their relevance for the job.

Extremity Shifts

It has been observed that group member opinions sometimes become more extreme after group discussion (Meyers & Lamm, 1976). This seems to happen because individuals tend not to effectively discuss unique information in group settings (Gigone & Hastie, 1993; Stasser & Stewart, 1992; Stasser & Titus, 1985). This polarizes group judgments because shared information is discussed more frequently and is viewed as more representative of the job.

It appears that the initial level of opinion homogeneity (Williams & Taormina, 1993), coupled with the extremity of initial judgments (Sackett & Wilson, 1982), make extremity shifts more likely. Thus, if the information discussed by a group is generally shared by all members, and this information is modestly extreme, then individual opinions are likely to be reinforced (Moscovici & Zavalloni, 1969), making the discussed information appear more representative of the job than it actually is (Meyers & Lamm, 1976).

Motivation Loss

In many job analysis SME committees, some members participate less than other members. This failure to participate is often because of a lack of motivation (Shepperd, 1993). There are several reasons why motivation losses might occur. First, if individual member contributions cannot be evaluated, there is no contingency upon an individual's response and they cannot be held accountable (Tetlock, 1985). Second, if the job analysis task is not meaningful, the committee member has no intrinsic reason to contribute. Finally, if group members feel the information they hold is redundant (i.e., their job knowledge overlaps with others), they are not likely to contribute.

Self-Presentation Processes

Impression Management

Impression management involves behaviors individuals direct toward others to create and maintain certain perceptions of themselves (Gardner & Martinko, 1988). If a job incumbent engages in impression management behaviors, the resulting job information will not reflect what their job actually entails but will reflect what they want people to think their job entails. Morgeson, Delaney-Klinger, Mayfield, Ferrara, and Campion (2004) found that such impression management processes are more likely when job incumbents rate ability statements rather than task statements.

Several factors are likely to encourage impression management behaviors in job analysis situations. First, impression management is more likely when there is some level of ambiguity. Second, impression management is more likely when people are encouraged to examine their own behavior. Third, impression management is more likely when the audience is high status. Finally, impression management is more likely in situations that are particularly evaluative in nature or where it is in the incumbent's best interest to make a good impression.

Social Desirability

In job analysis situations, social desirability reflects a job incumbent's desire to gain social approval from job analysts, supervisors, or coworkers. In attempting to gain approval, incumbents may distort responses in such a way as to portray their job as having relatively more socially desirable or relatively fewer socially undesirable features.

For example, Smith and Hakel (1979) found that supervisors and incumbents tend to inflate their responses compared to analysts on socially desirable items in a job analysis questionnaire. Anderson, Warner, and Spencer (1984) found that job applicants extensively inflated (i.e., responded in a socially desirable manner) their ratings on a self-assessed task inventory. In addition, the degree to which job analysis information is a reflection of the individual providing the information, and his or her unique value to the organization, may moderate the level of socially desirable responding.

Demand Effects

Demand effects refer to the tendency of individuals to play the role of "good subject" and attempt to confirm a researcher's expectations (Orne, 1962). Demand effects in the job analysis context can occur in a number of different ways. For example, in choosing certain task and knowledge, skill, ability, and other characteristics (KSAOs), individuals are indirectly told what the organization thinks is important, thereby creating a demand effect. As another example, showing incumbents previous job analysis results is likely to foster demand effects, especially if the information is complex.

COGNITIVE SOURCES OF INACCURACY

Limitations in Information Processing System

Information Overload

Information overload is likely to occur in job analysis when the amount of information is very large. Because many job analysis questionnaires require respondents to rate large numbers of items on numerous dimensions (e.g., importance, time spent, difficulty) and these ratings may take hours to complete, individuals may be overloaded and seek to simplify the rating process.

Information overload can also occur when the information processing task is complex. For example, making judgments of an entire job (i.e., holistic judgments) are more complex than making judgments of specific tasks (i.e., decomposed judgments). Evidence suggests that that decomposed judgments yield more reliable and accurate data than holistic judgments (Butler & Harvey, 1988; Morgeson et al., 2004; Sanchez & Levine, 1989, 1994).

Heuristics

When individuals make judgments, they often use heuristics that imperfectly mirror reality (Kahneman, Slovic, & Tversky, 1982). The representativeness heuristic reflects the tendency of people to judge the degree of relationship between two things by assessing their similarity. Inaccuracies that result from the representativeness heuristic may be particularly likely for analysts who have evaluated similar jobs in the past and therefore have a number of implicit expectations concerning salaries, job titles, or the status accorded different jobs.

The availability heuristic reflects the fact that the frequency of events is based on the ease with which examples can be recalled. Thus, events more easily recalled will appear to be more frequently occurring. Inaccuracies resulting from the availability heuristic are more likely if a job requires some unusual tasks because they might be recalled and reported as more frequently occurring because of their unusual and memorable nature.

Categorization

Categorization helps minimize cognitive effort and maximize information intake (Rosch, 1978). It is likely that when rendering job-related judgments, job incumbents will recall the category instead of actual facts about the job. Job-related judgments are then made with respect to the recalled category, rather than the details of the job, thus yielding inaccurate job information.

Job categorization is especially likely when there are a large number of tasks to be performed (Kulik, 1989). If a job analyst completes an instrument that contains hundreds of items, he or she probably will not remember the specific KSAOs required to perform the job. If he or she had concluded that the job was complex, however, subsequent judgments may inflate importance ratings, thus reducing the accuracy of the job information.

Biases in Information Processing System

Carelessness

Carelessness reflects instances where incumbents intentionally respond inaccurately because of not reading each item closely enough or responding inappropriately given the wording of the question (Green & Stutzman, 1986). Carelessness is a particular threat for multiposition job analysis questionnaires that include many tasks not relevant for any given position. Although this saves time in terms of creating only one questionnaire for the entire sample, it may produce problems in terms of contamination due to careless responding. That is, individuals may carelessly indicate they perform certain tasks when they do not.

Extraneous Information

Research has demonstrated that biased information processing in job analysis can result from extraneous information not relevant to the analysis (Arvey, Davis, McGowen, & Dipboye, 1982; Mount & Ellis, 1987; Prien & Saleh, 1963; Rynes, Weber, & Milkovich, 1989; Schwab & Grams, 1985). Extraneous information can include such things as incumbent interest in the job, satisfaction, and compensation level (Conte, Dean, Ringenbach, Moran, & Landy, 2005). It is important to note, however, that extraneous information is not always a biasing force. That is, the extraneous information might provide relevant cues in many job analysis situations.

Inadequate Information

Possession of inadequate information can also lead to inaccuracies and usually occurs with analysts or "naïve" raters. Naïve analysts, or those with less information, tend to produce ratings that are less reliable and valid than expert raters (Cornelius, DeNisi, & Blencoe, 1984; DeNisi, Cornelius, & Blencoe, 1987; Friedman & Harvey, 1986; Hahn & Dipboye, 1988; Harvey & Lozada-Larsen, 1988; Richman & Quiñones, 1996).

Primacy/Recency and Contrast Effects

Primacy effects refer to the exaggerated influence of initial information, whereas recency effects refer to the influence recent information can have on judgments. It is possible that recently performed job tasks could overly influence incumbent judgments or recently conducted observations or interviews could overly influence analyst judgments because they are more available in memory. Contrast effects refer to distortions that are caused by the differences between stimuli. In job analysis, it is possible that after evaluating a number of lower-level jobs, an analyst will give excessively high ratings to an average-level job because of contrast effects.

Halo

Inaccuracy because of halo occurs when ratings are assigned on the basis of global impressions or highly salient features instead of distinguishing between dimensions (Borman, 1991). Any individual who provides job analysis information could potentially be affected by halo inaccuracies. For example, if job analysts fail to sample the incumbent's work behavior comprehensively enough, they are likely to rely on global impressions. In addition, if questionnaires have abstract or nonspecific descriptors overlapping dimensions are likely to result.

Leniency and Severity

Tendencies on the part of respondents to give consistently high ratings are termed leniency, and tendencies to give consistently low ratings are termed severity. Leniency is likely to occur in job analysis because respondents may be unwilling to be critical and downgrade the position. Severity is less likely to occur.

Method Effects

When job analysis data is collected through a single method (e.g., questionnaire), there may be problems with common method variance (Campbell & Fiske, 1959; Fiske, 1982). Job analyses are particularly susceptible to these problems because questionnaires are often completed by the same person, at the same time, using the same questionnaire, all conditions under which maximize the probability of method effects. Aside from the common source for the data, a number of other typical methodological practices in job analysis may further enhance method effects. For example, the use of a common response format, excessively long questionnaires, and fine or subtle distinctions between items may further enhance covariation among items.

CONCLUSION

As this chapter helps demonstrate, there is great potential for inaccuracy in job analysis. Job analysis researchers and practitioners should be aware of these potential sources of inaccuracy and seek to eliminate or minimize their potential negative effects. If unchecked, the quality of job analysis information is likely to suffer (Morgeson & Campion, 2000; Morgeson & Dierdorff, 2011).

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