COMMENTARY

In analyses of the gender pay gap, job analysis, and O*NET don't get a lot of respect, but they should

Jeffrey M. Conte*, Jessica L. Robison, and Andrew J. Tricarico

Department of Psychology, San Diego State University
*Corresponding author. Email: jeff.conte@sdsu.edu

"In our view, the court does not comprehend, or is indifferent to, the insidious way in which women can be victims of pay discrimination."

—Ruth Bader Ginsburg (1933-2020), speaking for the dissenting justices in U.S. Supreme Court case *Ledbetter v. Goodyear* (2007)

"In the past few months, I've become convinced of one thing: If I were a man, I'd be paid more. I realize that some people may not sympathize with an actress who gets to be in movies and on TV for a living. But if you take away names and vocations, the fact is that in 2015 a man is still getting paid more money to do the same job a woman does, in Hollywood and everywhere else. And no matter where you live or what you do, that's bull—t."

—Judy Greer (1975–), American actress and director

"When we pay women less than men, we're telling women their work isn't as valuable. We're all equally valuable. And we should be paid equally,"

—Maria Shriver (1955–), journalist and author

In their focal article, Strah et al. (2021) prompted researchers and practitioners to debate and discuss the identification of equivalent jobs to facilitate fair and legal pay. Their article also initiated a discussion about how the job analysis and job classification literature can remain current and continue to address fair pay in organizations. Strah et al. mentioned O*NET several times, particularly within the sections describing how jobs are quantified. In this commentary, we provide an elaboration and extension of the ideas provided in the focal article. This commentary provides a detailed example from O*NET and explores how O*NET can be used to understand the gender pay gap and minimize it. We do so by (a) giving a detailed example that compares similar jobs using O*NET and (b) examining research studies that have investigated the gender pay gap with a specific focus on job analysis and O*NET (Peterson et al., 1999; Peterson et al., 2001). In 1989, industrial-organizational (I-O) psychologist Joseph Cunningham stated that job analysis could be characterized as the Rodney Dangerfield of I-O psychology: It doesn't get a lot of respect. The view in this commentary is that job analysis and the O*NET database should indeed get more respect based on their usefulness in many areas including in addressing the critical issue of the gender wage gap.

Strah et al. (2021) note that there are issues with using generalized work activities as a job description because they are too abstract and vague. However, it is difficult and time consuming to develop lists of specific tasks for every job within an organization. Below we describe steps to assist I-O psychologists with documenting specific job tasks and knowledge, skills, abilities, and other characteristics (KSAOs) in O*NET. First, using O*NET is a practical first step for aggregating generalized work activities for a wide variety of jobs. Once an O*NET search has been conducted, it is important to conduct interviews with subject matter experts in each job.

To demonstrate the usefulness of O*NET as a tool that can be used to argue the similarity of skills needed for different jobs, an example of a difference in pay of a sales manager and a marketing manager will be used. In this example, we demonstrate that the two jobs have similar required KSAOs and that if other characteristics (e.g., performance evaluations, length of time in position) are equivalent across two individuals, then there should be no reason for a difference in pay within the same company for individuals in these two positions. In this example, a female employee at Company X has been a sales manager for 2 years and recently discovered that her male coworker at Company X, who is a marketing manager and has been for 2 years, has a salary that is above hers. Using O*NET, an argument could be made that a sales and marketing manager within the same company and with the same experience should be paid the same wages.

According to the *Occupational Outlook Handbook* (Bureau of Labor Statistics, 2020), sales managers make an average of $132,290, whereas marketing managers make an average of $141,490. On O*NET, both jobs are listed as being in a "Job Four Zone," which is a job that requires considerable preparation for the role. Both jobs are also listed as requiring a 4-year bachelor's degree in the section on education requirements. Further, O*NET rates the Specific Vocation Preparation (SVP) necessary for the job in which SVP is defined as "the amount of lapsed time required by a typical worker to learn the techniques, acquire the information, and develop the facility needed for average performance in a specific job-worker situation" (https://www.onetonline.org/help/online/svp). O*NET has nine levels, 1 being "short demonstration only" and 9 being "over 10 years." Both a sales manager and a marketing manager have an SVP range of 7.0 to 8.0, meaning they both require between 4 and 10 years of experience in similar roles in order to perform the job. When applied to the example above, this means that both sales and marketing managers require the same degree and a similar amount of experience before being qualified for the role.

What may be the most compelling information in order to argue for the similarity or equivalence of skills between two jobs are the ratings of KSAOs that O*NET provides. Under "View Report," the Details section provides ratings out of 100 of the importance of KSAOs for the job. For example, in the knowledge category, "Sales and Marketing" is the most important knowledge needed for both sales and marketing managers. This category is rated 96 for marketing managers and 93 for sales managers. The second most important knowledge for marketing managers is "English Language," in which its importance rating is 87. For sales managers, this category is third most important to the job, but it still has a high rating of 83. Both sales and marketing managers must have knowledge of "Customer and Personal Service" in which sales managers have a rating of 87 and marketing managers have a rating of 71. Using this data, although there are slight differences in the importance ratings for each of these categories, the two jobs require very similar knowledge to be performed well. Therefore, if the male employee in Company X and the female employee in Company X are being paid differently, this data could be used to indicate that their jobs should be paid similarly.

Another O*NET section in which data can be compared to show the equivalence of the jobs is the Skills category. Once again, this data can be found under the "View Report" section under Details. Active listening is rated as highly important for both sales and marketing managers in which the sales manager importance rating is 75 and the marketing manager rating is 72. Speaking is another skill that is listed as highly important for both careers. In this case, sales

managers rate a 75 and marketing managers rate a 72. Critical thinking, social perceptiveness, and reading comprehension have the same rating of 72 across both jobs.

Under the Abilities section of O*NET, sales and marketing managers have the same top four skills, and all of the skills have the same ratings for both jobs. The most important abilities for both sales and marketing managers are oral comprehension (75), oral expression (75), written comprehension (75), and deductive reasoning (72). With this information from O*NET, a strong argument could be made that the two positions within the company require similar amounts of KSAOs to perform the job well, and thus, all other aspects being equal, men and women in those positions should be paid the same.

The literature on O*NET has suggested that two important sources of the gender wage gap are the effects of women's responsibility for childrearing and occupational segregation, which was the focus of Alksnis et al. (2008). They examined participants' attitudes toward "male-perceived" and "female-perceived" jobs in terms of how much participants believed they should be paid. Each job presented to the participants was identical in qualification and title, and the only difference was the addition of a gendered label for each job presented. For example, the job of "teacher" was presented as either "home economics teacher" (stereotypically female) and "industrial arts teacher" (stereotypically male). The authors found that participants allotted lower salaries to the female-coded jobs. Another important finding was that there was no significant interaction when it came to the participants' genders. Men and women alike were susceptible to subscribing to this occupational stereotype. So, although Strah et al. (2021) hoped to suggest newer and better ways to classify jobs by integrating job analysis information, Alksnis et al. (2008) demonstrated that individual attitudes toward job titles might also have to be considered. Additionally, based on these results, it might be important to focus more intently on the specific KSAOs of a job rather than its title, especially if that title has a "gender tilt."

Auspurg et al. (2017) used a multifactorial survey to assess two theories regarding the gender wage gap. The first theory involved gender-specific referents, which is related to social comparison theory, which states that people tend to prefer comparing themselves against similar individuals. An alternative interpretation of this gender referent theory is that women are placed in different categories as men, so comparisons are easier between women. So, theoretically, underpaid women will tend to primarily compare themselves with other underpaid women, feeling equitable even when their situation is not. The second theory assessed by the current paper is reward expectations theory, which is focused on societal standards. In this case, the theory suggests that society generally views men to be superior to women, so within the context of this theory, both men and women will tend to offer lower wages to women. In order to test the salience of these theories, a sample of over 1,600 Germans with a mean age of 49 was obtained (in contrast to much of the other research in this area, which has been conducted with college-age participants). Overall, the gender-specific referents theory was not supported by the data. However, the reward expectations theory received some support. The results indicated that those who experienced gender pay differences in their own jobs actually tended to have lower reward expectations and, in turn, different justice evaluations. The survey demonstrated that a cognitive bias against gender is present, so a great deal of gender discrimination is due to subtle societal factors. For change to occur, pay allotment systems will have to become less subjective. A new wage system informed by more objective job analysis data from O*NET might assist in removing cognitive biases by not giving such biases an opportunity to surface.

Hirsch and Schumacher (2012) examined the reasons why registered nurse positions tend to experience shortages despite being paid generally higher than other college-educated jobs. They noticed that there was perhaps something wrong with how these wage differentials were being calculated, and they suggested that examining this issue might provide some explanation for the paradoxical high wage/high position shortage problem. A traditional wage analysis using current population survey data demonstrated that nurses tend to make significantly more than other college-educated positions. However, once these data were examined from a different angle, the

results began to change. The researchers turned to O*NET and collected 259 occupational job descriptors (i.e., KSAOs). Once the current population survey data were placed against the job descriptors, it was found that, for many job descriptors associated with nursing, there was a very high skill requirement. On top of that, nurses often work in very difficult conditions with many regularly risking exposure to disease, radiation, and work with and around sharp objects. Dangerous job attributes like these require a higher opportunity cost, offering a compelling justification for higher than average wages. In short, these job attributes are not the type of information that would show up when conducting a traditional, surface-level wage analysis. Using O*NET can add a new dimension to the data, providing empirical explanations for certain previously unexplainable intricacies. As demonstrated by Hirsch and Schumacher (2012), if applied correctly, O*NET data can greatly assist in adding essential context to any analysis of occupational-related data.

Judge and Livingston (2008) examined possible mechanisms behind the gender wage gap. In particular, they explored gender role orientation, which is defined as the attitudes toward gendered separation of roles at work and at home. Judge and Livingston proposed that gender role orientation creates a kind of self-fulfilling prophecy, one in which traditional women have lower wage expectations than egalitarian women, and traditional men have higher wage expectations than egalitarian men. Furthermore, they argued that if people believe these things, their behavior will conform to fit the stereotypes they harbor in their minds. The results of their study indicated that attitudes were a significant driving force behind the wage gap. Traditional gender role orientation had a strong positive association with earnings when it came to men but a strong negative association with earnings when it came to women. Judge and Livingston noted that it is unlikely that women would be supportive of lower wages for women, but if women have a traditional gender orientation, they may be functionally supporting the wage gap. These traditional attitudes seem to be fading away, but it is impossible to tell how quickly they will decline. The findings in this study emphasize that attitudes toward gender are often an important cause of a wage differential. A data-driven pay model, informed by O*NET and other job-analytic information, can provide more equality/equity than the pay models of the past, as those models are often influenced by antiquated attitudes toward gender.

LaPolice et al. (2008) explored whether the KSAOs provided by O*NET are able to predict the level of literacy required for a given job with an entry in the database. The literacy construct was derived from the National Adult Literacy Survey. After a lengthy validation process, the attributes of different applied literacy domains were matched to relevant KSAOs from O*NET. After this model was created, it was applied to other jobs within O*NET. After testing the validity of the model, the researchers determined that it could successfully predict how demanding a particular job would be in terms of the three literacy domains. With this model, all of this information can be derived from existing O*NET data. The degree of literacy required can be quite helpful in determining how demanding a job may be, and it could very easily be referenced in terms of informing the different compensation levels for any given job.

Joshi et al. (2015) conducted a meta-analysis that attempted to determine the effects of occupation-level, industry-level, and job-level factors on both performance evaluations and rewards between male and female employees. Performance evaluations (mostly supervisor ratings of employees) and organizational rewards (extrinsic reinforcement provided by one's organization, such as bonuses, raises, and promotions) were investigated. The researchers determined the proportion of men in the studied occupations as well as the proportion of women in senior positions. The occupational prestige of each occupation studied was determined, and job complexity data were drawn from O*NET. The authors found that the mean sex difference when it came to rewards was 14 times higher than the mean sex difference was for performance evaluations (in both situations, men were favored). They also found that the percentage of men in an occupation enhanced the male–female gap in both performance and rewards. Further, occupational prestige was found to be significantly related to higher rewards for men.

This is especially interesting because women were perceived to perform equally as well but they received fewer rewards. Men also tended to receive better evaluations and more rewards on average as job complexity increased. Overall, many occupational equity deficiencies were uncovered through this meta-analysis. Despite societal effort to create a more equal workplace, women still tend to operate at a disadvantage relative to men. One conclusion from this meta-analysis is that systems need to be put in place that remove subjectivity from performance measurement. Additionally, based on these results, it would be helpful to continue to push for more women in leadership positions in order to help even the playing field.

Overall, this commentary suggests that a deeper examination of O*NET can be helpful in moving forward with pay equity considerations. The existing research on O*NET indicates that traditional attitudes have a significant effect on the wage gap, and these attitudes are often harbored by both men and women. Additional research studies and data are needed to help managers and organizational leaders to make fair pay allocations and decisions. Nevertheless, information from previous research studies and objective data from O*NET can greatly assist in adding context to applied projects and work situations that involve pay equity. We look forward to continued discussion of and research on these critically important pay equity and gender wage gap issues.

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