INDUSTRIAL PSYCHOLOGY

PRACTICAL 1

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About

Nancy is a Principal at The Nancy T. Tippins Group, LLC where she brings almost 40 years of experience as both an internal consultant and external consultant to the firm. Her work has addressed many aspects of employment practices, including workforce planning, recruiting, job analysis, competency development, selection, training, manager and executive assessment, employee and management development, succession planning, compensation, complaint procedures, and EEO-related policies and procedures.

Active in professional affairs, Nancy has a longstanding involvement with the Society for Industrial and Organizational Psychology (SIOP) where she served in many capacities, including President (2000-2001). She is currently the Secretary of the SIOP Foundation. She has also been active in setting standards for tests and assessments, serving on the Ad Hoc Committee on the Revision of the Principles for the Validation and Use of Personnel Selection Procedures (1999), and co-chairing the committee for the current revision of the Principles. She was one of the U.S. representatives on the ISO 9000 committee to establish international testing standards. She also served on the Joint Committee to revise the Standards for Educational and Psychological Tests (2014).

Nancy has authored and presented numerous papers on tests and assessments. Recently, she coauthored Designing and Implementing Global Selection Systems, co-edited two editions of the Handbook of Employee Selection, and another edited volume, Technology Enhanced Assessments. She has served as the Associate Editor for the Scientist-Practitioner Forum of Personnel Psychology. She is currently on the Editorial Boards of the Journal of Applied Psychology, Personnel Psychology, Industrial and Organizational Psychology: Perspectives on Science and Practice, the Journal of Psychology and Business, Organization Dynamics, and Personnel Assessment and Decisions. She is the current editor of SIOP's Professional Practice Series.

Theory

The selection of employees is one of the first and most important steps in ensuring an organization's effectiveness. Dr. Tippins combines her industrial organizational psychology expertise and leadership skills to help companies:

- select employees
- reduce hiring mistakes and
- develop their leadership strategies

According to her research, Scientific, Legal, and Ethical Concerns About AI-Based Personnel Selection Tools: A Call to Action, Organizations are increasingly turning toward personnel selection tools that rely on artificial intelligence (AI) technologies and machine learning algorithms that, together, intend to predict the future success of employees better than traditional tools. These new forms of assessment include online games, video-based interviews, and big data pulled from many sources, including test responses, test-taking behavior, applications, resumes, and social media. Speedy processing, lower costs, convenient access, and applicant engagement are often and rightfully cited as the practical advantages of using these selection tools. At the same time, however, these tools raise serious concerns about their effectiveness in terms of their conceptual relevance to the job, their basis in job analysis to ensure job relevancy, their measurement characteristics (reliability and stability), their validity in predicting employee-relevant outcomes, their evidence and normative information being updated appropriately, and the associated ethical concerns around what information is being represented to employers and told to job candidates. Her research explores these concerns, concluding with an urgent call to industrial and organizational psychologists to extend existing professional standards for employment testing to these new AI and machine learning-based forms of testing, including standards and requirements for their documentation.

She suggested that current practices in this area come with some serious liabilities and potential risks, that must be addressed through the lens of professional guidelines, expertise, and experience of I-O psychologists who work in the field of employee selection. She hopes that more I-O psychologists will proactively engage in this assessment arena (not only selection specialists, but also in collaboration with those involved in recruiting, diversity and inclusion, and leadership) because it offers the possibility of improving assessment and promoting the future relevance of her profession. She believes that I-O psychologists also must vigorously engage with others who work in this area. The work being done by I-O psychologists and others in the development of new assessment and selection tools is exciting and offers advantages to employers and applicants alike. Yet, she is also responsible for ensuring that progress does not approach escape velocity from her moorings of scientific, psychometric, and practical knowledge; understanding of legal guidelines, professional and ethical obligations; and many hard lessons learned in the employment testing arena. Now is the time to carefully consider how the Principles should be applied to new and evolving forms of assessments to reflect the research literature and best practices.

Situation/ Case Study

An algorithm that was being tested as a recruitment tool by online giant Amazon was sexist and had to be scrapped, according to a Reuters report.

Amazon.com Inc's AMZN.O machine-learning specialists uncovered a big problem: their new recruiting engine did not like women. Automation has been key to Amazon’s e-commerce dominance, be it inside warehouses or driving pricing decisions. The company’s experimental

hiring tool used artificial intelligence to give job candidates scores ranging from one to five stars - much like shoppers rate products on Amazon, some of the people said. They wanted it to be an engine whereby giving 100 resumes, it will spit out the top five, and they'll hire those. But by 2015, the company realized its new system was not rating candidates for software developer jobs and other technical posts in a gender-neutral way. That is because Amazon's computer models were trained to vet applicants by observing patterns in resumes submitted to the company over a 10-year period. Most came from men, a reflection of male dominance across the tech industry. It was clear that the system was not rating candidates in a gender-neutral way because it was built on data accumulated from CVs submitted to the firm mostly from males. however, Amazon edited the programs to make them neutral to these particular terms. But that was no guarantee that the machines would not devise other ways of sorting candidates that could prove discriminatory, the people said.

The company's experiment, which Reuters is the first to report, offers a case study of the limitations of machine learning. It also serves as a lesson to the growing list of large companies including Hilton Worldwide Holdings Inc HLT.N and Goldman Sachs Group Inc GS.N that are looking to automate portions of the hiring process.

Solution

The above situation is a typical example of prejudice experienced by a corporation adopting AI-based recruitment. However, Gender bias was not the only issue. Problems with the data that underpinned the models' judgments meant that unqualified candidates were often recommended for all manner of jobs, the people said. Employment testing often connotes the use of a structured instrument to collect responses from a test taker that, when scored, would indicate his/her standing on the construct being measured.

According to the theory proposed by Nancy Tippins, despite the speed, scalability, and lack of bias of a random-number generator, it lacks the reliability, validity, and utility that hiring organizations expect in order to identify capable candidates and achieve an acceptable return on investment. To ensure that the algorithm is fair, and is really interpretable and explainable, I-O psychologists must be central players in establishing how existing standards for employment testing should be applied to these new forms of testing. Choosing I-O psychologists working in the field of employment testing to address the concerns raised and establish professional standards for technology-enhanced selection tools that are based on the Principles will help make a better and more reliable recruiting system.

Amazon's assessment used a wide variety of data that are obtained or "scraped" from applications, resumes, and past data; they are then evaluated using hundreds of possible machine learning algorithms. Although the choice of machine learning method is sometimes idiosyncratic to the researcher, the choice is often based on factors such as technical

considerations, the nature of the dataset, the availability of software, and the researcher's familiarity with various methods. I-O psychologists have focused on developing and analyzing theory-based and job-relevant psychological measures in order to rule out relationships that seem questionable (e.g., facial features and job performance) or biased (e.g., race/ethnicity covariates and job performance).

I-O psychologists are well-equipped to undertake this task, as many are trained extensively in the areas of measure development, psychometrics, personnel selection, and relevant employment law, and have deep experience in developing, validating, and managing the implementation of selection procedures in organizations. They have a deep grounding in factors that are critically important for employment testing, such as psychological constructs (e.g., knowledge, personality, interests, engagement, teamwork, safety, performance, turnover), theories of testing and assessment (e.g., construct-oriented test development, psychometric modeling, appropriate scoring, and interpretation), the types of evidence that support the inferences to be made from the test scores (e.g., selection decisions, validity), psychometric properties of effective tests (e.g., internal consistency, test–retest, and alternate forms reliability), and the evaluation of subgroup differences (e.g., differential prediction, measurement invariance, and adverse impact with respect to protected classes). She also suggested that data scientists and software developers are important collaborators in developing technologies to acquire, store, and analyze large amounts of information, create algorithms that predict outcomes, and evaluate their effectiveness. Web designers and IT professionals are needed to construct games and create engaging and effective web interfaces, producing tools to be used by applicants and interpreted by recruiters, HR professionals, I-O psychologists, and hiring managers.

Conclusion

Through this practice, we obtained an understanding of how a psychologist's participation might be crucial when creating an AI-based recruitment system and reducing the various risks involved. We also observed how the absence of these insights might result in the organization's inability to attract the best individuals, which may negatively impact the business's success and its brand's reputation.