



## Minds at work: what's required according to the Occupational Requirements Survey

*By Kenneth Cluskey and Kristen Monaco*

How much problem-solving time goes into an architect's job? What types of mental capabilities are required of employees who work in a telework environment? What types of interpersonal skills are required for customer service jobs? Mental and cognitive job requirements provide jobseekers with important information on the soft skills needed for specific jobs and a sense of the demands of different occupations. The Occupational Requirements Survey (ORS) is collected by the U.S. Bureau of Labor Statistics (BLS) on behalf of the Social Security Administration (SSA) to support adjudication for its disability programs—Social Security Disability Insurance (SSDI) and Supplemental Security Income (SSI). SSDI is a large program. In December 2019, there were roughly 9.8 million recipients of SSDI payments totaling roughly \$11.7 billion. Slightly over one-third (34.5

percent) of SSDI recipients have been diagnosed with mental disorders (based on the International Classification of Diseases terminology), roughly equivalent to the share diagnosed with diseases of the musculoskeletal system and connective tissue (33.6 percent).<sup>1</sup> Approximately 1 in 9 SSDI recipients also receive SSI payments. Among those under age 65 receiving SSI payments, roughly 6 in 10 have been diagnosed with a mental disorder.<sup>2</sup>

Historically, data used in support of SSA's disability adjudication process have not contained information that may be critical to understanding whether an individual diagnosed with a mental disorder can perform work. Some of these workers may have difficulty working in jobs that require a great deal of interaction with the public, and others may have difficulty working in jobs where they cannot periodically step away from work. As the share of SSDI and SSI claimants with diagnoses of mental disorders has increased over time, it is important to identify data that can help determine if individuals can do certain jobs, given their disabilities. This issue of **Beyond the Numbers** presents information on the mental and cognitive requirements of work from the Occupational Requirements Survey, including definitions and detailed examples of these requirements and their prevalence across all workers and broad occupational groups.

## ORS background

Currently, SSA disability adjudication policy requires answers to two key questions: can the claimant perform past work and, if not, can the claimant perform other work in the U.S. economy? These two questions drive the types of elements collected and the approach to sampling and estimation for the Occupational Requirements Survey.<sup>3</sup> Data are collected from establishment respondents for a subset of jobs, from a sample of private establishments as well as state and local government units. The unit of observation for ORS is the job, and the data collected capture the requirements for a job within an establishment, not specific characteristics of the workers who perform the job.

There are over 70 elements collected across four broad categories: the physical requirements of work, education, training, and experience, mental and cognitive requirements, and environmental conditions. Many elements are similar to those produced as part of the Dictionary of Occupational Titles (DOT), but the DOT focused primarily on the physical and education and training requirements of jobs. As the share of SSA claimant filings describing a mental or cognitive disability has increased over time, the need for data detailing the mental and cognitive requirements for particular jobs given a person's limitations and impairments has become critical. It is important to note that the ORS elements designated as capturing the mental and cognitive demands of work go beyond constructs associated with cognitive levels of work and include other variables that reflect attributes of the job that may need to be present or absent depending on the claimant's diagnosis.

Because of the level of detail needed for ORS, final estimates are based upon multi-year samples of collected data ("waves"). The Wave 1 final estimates were published in 2018 and covered 3 years of collected data. These final estimates did not include the mental and cognitive demands of work, as the original measures for these variables were discontinued after the second year of collection in favor of a new set of measures. Wave 2 of ORS started in 2018. It will be collected over 5 years and contain these new cognitive measures. The data for this paper are from the first 2 years of Wave 2, reference year 2020 and are therefore considered preliminary estimates.

## Specific vocational preparation as a proxy

In the absence of comprehensive data on the cognitive requirements of work, many researchers rely on proxies such as education and specific vocational preparation (SVP). The latter is a measurement derived from summing

the length of time involved in formal education, nondegree credentials, on-the-job training, and prior work experience required for the job. Rather than relying solely on formal education, researchers use SVP, which includes relevant time spent acquiring skills. Relatively high SVP can result from either higher levels of required education or lengthy apprenticeships or similar types of nondegree credentials. For example, 94.8 percent of accountants and auditors and 92.3 percent of electricians had an SVP level between 2 and 10 years of vocational preparation. The overwhelming majority (92.0 percent) of accountant jobs required a bachelor's degree at minimum, whereas 68.1 percent of electrician jobs required a high school diploma.

In 2020, electrician jobs required an average of 1,554 days (roughly 4 ¼ years) obtaining their nondegree credentials. Nondegree credentials include certifications, licenses, educational certificates, and other types of credentials. Apprenticeships are a type of nondegree credential that is classified according to the issuing body. If a state issues licenses for apprenticeship training, the apprenticeship credential is classified as a license. In 2020, electrician jobs required an average of 1,554 days (roughly 4 ¼ years) to complete their license requirements. Therefore, electrician apprenticeships are likely being classified and coded as a license.

SVP, however, is not a replacement for information about the cognitive requirements of jobs. Although jobs that require high levels of SVP also tend to be associated with more complex cognitive requirements, the overlap is far from perfect. Many jobs require high levels of formal education that do not require more than basic people skills. Conversely, many jobs do not require high levels of formal education, but require more than basic people skills and more than infrequent occurrences of problem solving. We will return to this relationship after first describing the ORS cognitive elements and some basic information about their prevalence among different occupational groups.

## Definitions and key estimates

ORS contains several elements related to cognitive and mental requirements. This section provides definitions and examples of these requirements and also presents information on how they vary by occupation.

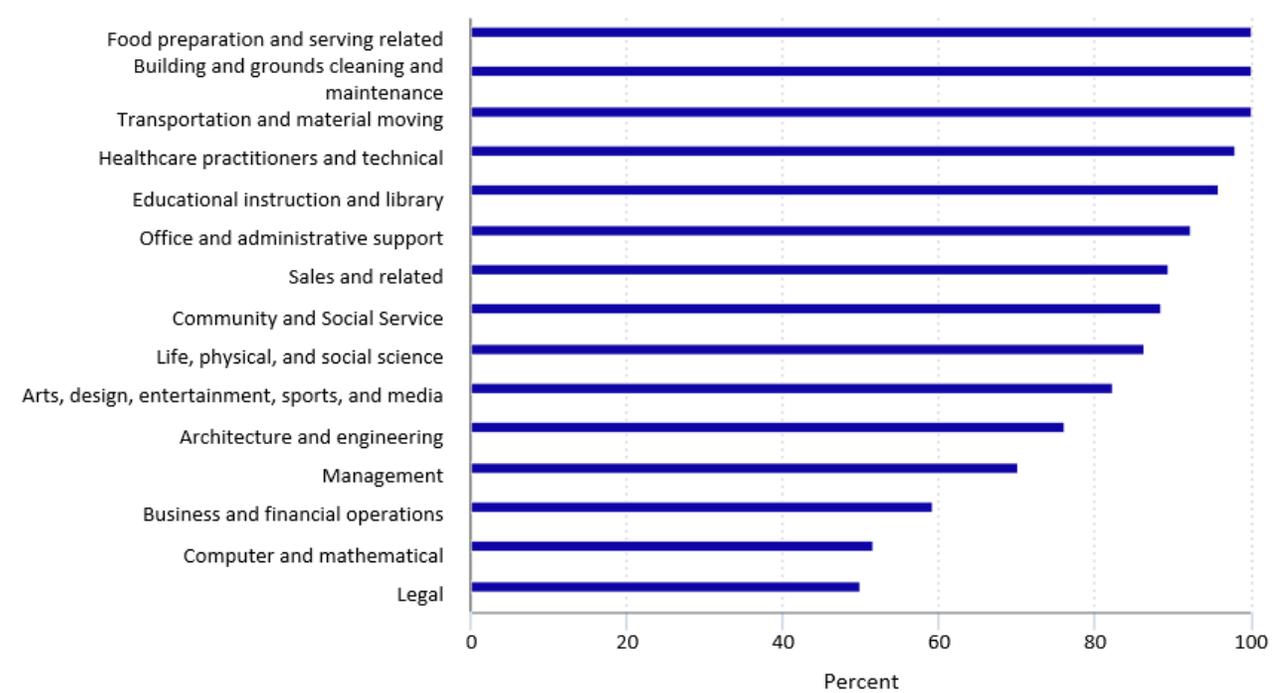
### Telework

Telework is included in ORS cognitive and mental occupational requirements. It captures information about work location and arrangements, work flexibility, supervision and work review, and interaction with others. The element intends to identify jobs in which workers have the flexibility to regularly perform their critical job functions off premises of the employer, in the privacy of the workers' homes for an agreed-upon portion of their work schedule. This flexibility affects the requirement to have regular in-person contacts. Key factors for telework include whether workers are able and permitted to perform their critical tasks and functions at home.

We should note that the 2020 ORS data does not include temporary telework policy changes that resulted due to the pandemic. BLS collected changes to requirements during the pandemic, including the presence of telework, only if the employers were certain the changes would exist after the pandemic passes. Future collections of ORS data can analyze permanent shifts to telework.

Telework is not prevalent for most workers; 91.0 percent of all workers did not have telework available in 2020. Chart 1 shows the lack of telework availability across broad occupational groups. Almost half (49.9 percent) of workers in legal occupations did not have telework available to them, and no workers in transportation and material-moving occupations had telework available.

**Chart 1. Percentage of workers in selected major occupation groups without telework available, 2020**



Hover over chart to view data.

Note: The 2020 ORS data do not include temporary telework policy changes that resulted due to the pandemic.

Source: U.S. Bureau of Labor Statistics, Occupational Requirements Survey.



Which jobs had a high availability of telework? Within the computer and mathematical occupational group, 90.0 percent of web developers had telework available. Similarly, 73.9 percent of software developers had telework available. Within the management group, 50.6 percent of sales managers had telework available, compared with 34.8 percent of financial managers who did. Among business and financial operations occupations, 64.2 percent of management analysts, and 59.6 percent of claims adjusters, examiners, and investigators had telework available to them.

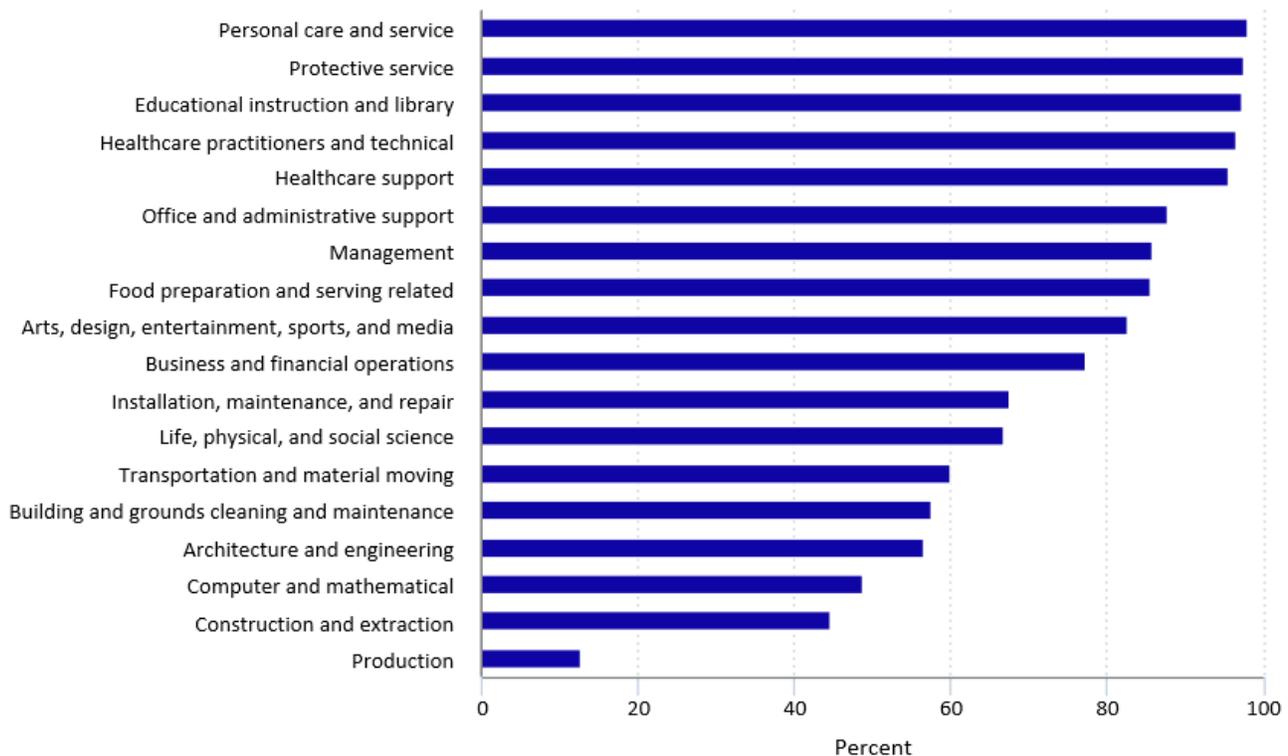
## Public interaction and people skills

ORS includes a set of elements designed to capture aspects of the job related to interpersonal functioning, including the requirement to work around others and the level of people skills required for the job.

Interaction with the general public seeks to identify settings where workers must have contact or interaction, either in person, via telephone, or by videoconferencing, with individuals other than coworkers. People they interact with may include customers, clients, patients, or workers from other establishments. This does not include work that involves indirect contacts, such as email, or working around the general public without a need to interact.

In 2020, over three-fourths (77.3 percent) of all workers had jobs that required interaction with the public. Chart 2 shows 82.7 percent of workers in arts, design, entertainment, sports and media were required to interact with the general public. In contrast, 48.8 percent of workers in computer and mathematical occupations were required to work with the general public.

**Chart 2: Percentage of workers in selected major occupation groups that are required to interact with the general public, 2020**



Hover over chart to view data.

Source: U.S. Bureau of Labor Statistics, Occupational Requirements Survey.



All tellers were required to interact with the general public (100 percent), compared with 59.3 percent of payroll and timekeeping clerks. Though both are administrative support jobs, 84.6 percent of general office clerks were required to interact with the general public, significantly more than the 48.6 percent of shipping, receiving and inventory clerks.

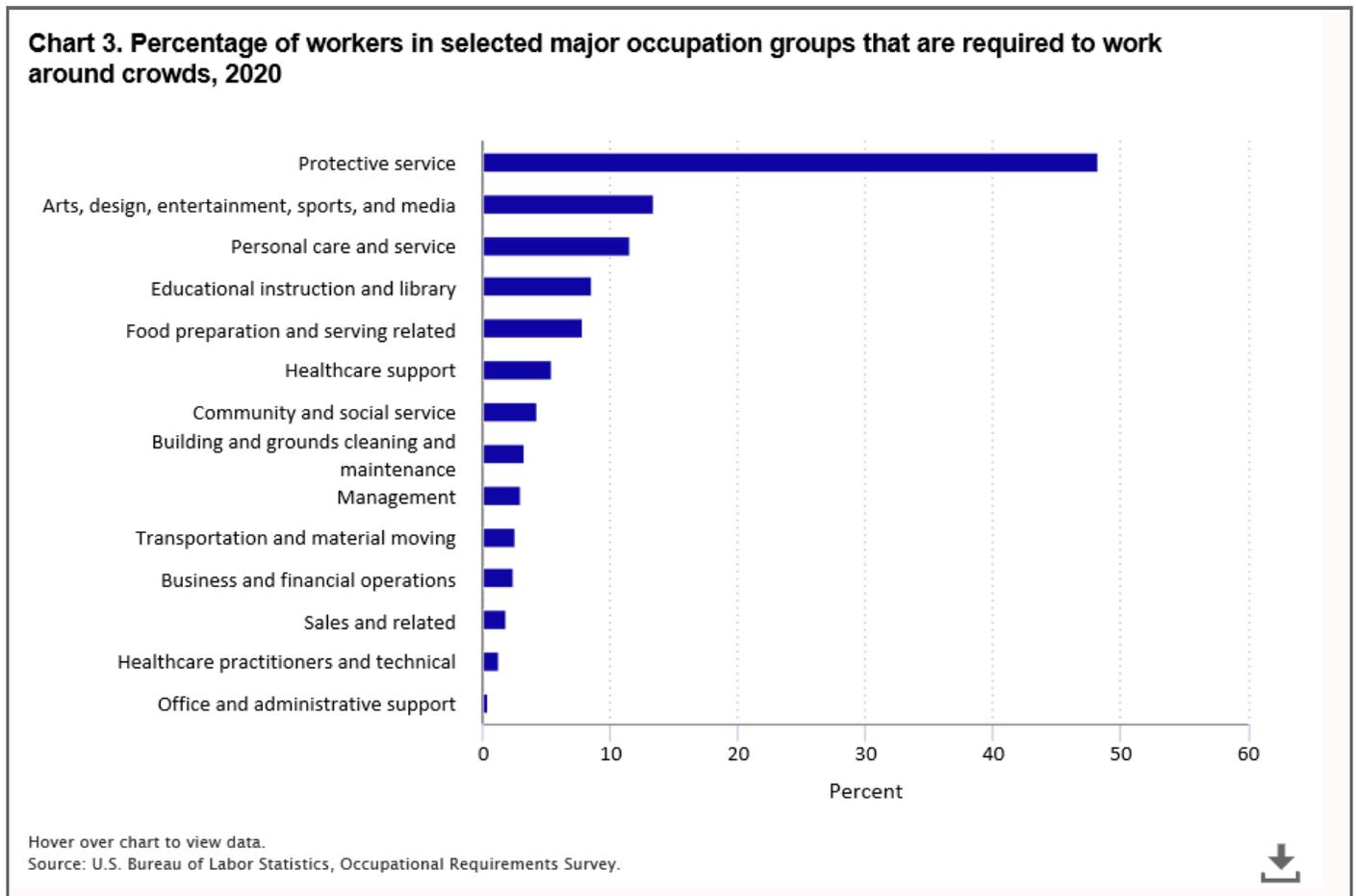
Working around crowds identifies settings in which the worker is required to work in a crowd in a way that restricts their movement. A crowd is a situation in which all of the following conditions must be met:

- Many unfamiliar people are present considering the space available, and
- Movement is restricted, and
- Any given arrangement of the crowd is temporary, and
- A certain level of disorganization is present, and
- Workers are not separated from unfamiliar people by counters, dividers, or other objects.

The intent of this element is to capture the need for an employee to work around large gatherings of unfamiliar people in locations such as convention halls, public malls, large public beaches, airports, as well as mass entertainment venues such as movie theatres, auditoriums, sporting events and nightclubs.

Working around crowds is common among protective service jobs (48.3 percent) and rare among office and administrative support jobs (0.5 percent) as shown in chart 3. Only 4.1 percent of workers were required to work around crowds in 2020. A more detailed look at occupations indicates that 80.7 percent of police and sheriff's

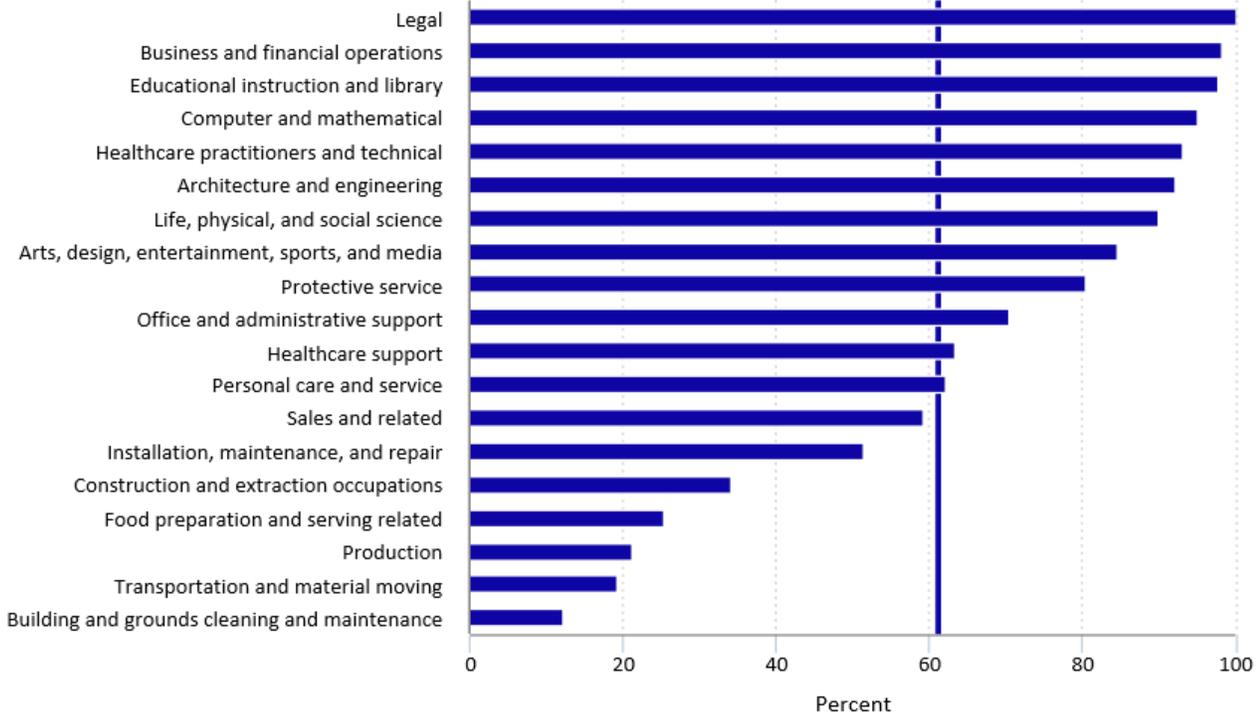
patrol officers are required to work around crowds, compared with 39.6 percent of correctional officers and jailers that are required to do so. Only 2.6 percent of all transportation and material-moving occupations were required to work around crowds.



People skills are the ability to listen, communicate, and relate to others. ORS asks, “Does this job require basic or more than basic people skills?” In jobs that require basic people skills, workers are often alone, or usually are only expected to engage in simple, brief work-related communication and to treat others in a non-offensive manner. In jobs that require more than basic people skills, workers are expected to engage in more than simple communication with others. Critical tasks involving instructing, mentoring, or supervising others always require more than basic people skills. Likewise, regularly engaging in persuasion or negotiation as part of their critical tasks is considered more than basic people skills.

Chart 4 shows that jobs for 61.3 percent of all workers and 12.1 percent of building and grounds cleaning and maintenance workers required more than basic people skills. This requirement is prevalent among computer and mathematical and business and financial operations occupations, which are characterized by over 90 percent of jobs requiring these skills; 95.2 percent of computer and mathematical jobs and 98.4 percent of business and financial operations jobs. This is much less prevalent among production jobs; only 21.3 percent of production jobs required more than basic people skills. Among healthcare occupations, 93.2 percent of healthcare practitioners and technical occupations and 63.4 percent of their healthcare support jobs required more than basic people skills.

**Chart 4. Percentage of workers in select major occupational groups in which more than basic people skills are required, 2020**



Hover over chart to view data.  
 Note: Vertical line represents percentage across all workers  
 Source: U.S. Bureau of Labor Statistics, Occupational Requirements Survey.

Although food preparation and serving jobs as a group tend not to involve more than basic people skills, this varies considerably. One hundred percent of dishwashing jobs require basic people skills, compared with 54.1 percent of bartending jobs requiring more than basic people skills.

## Able to step away from work

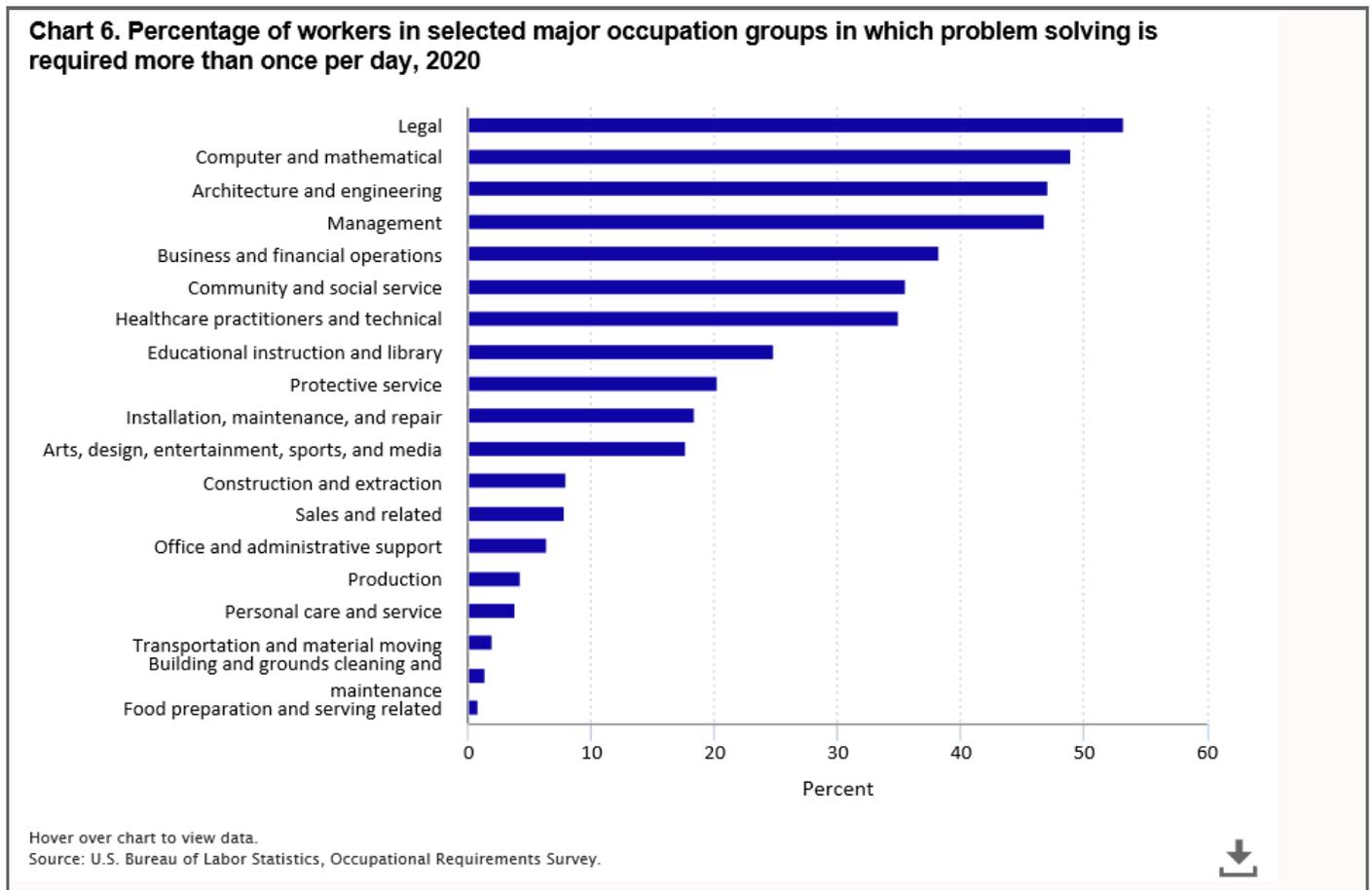
The ability to pause work captures whether workers are able to step away from their work area easily outside of scheduled breaks. The intent of this element is to capture jobs that have the flexibility, allowing workers to choose or control how and when they can take short, unscheduled breaks. For example, can workers make a personal phone call, gather one’s thoughts when feeling overwhelmed, or go to the breakroom to get a beverage at any time? If workers have the control and autonomy to take breaks when needed, they would have pause control. A job does not have pause control if a worker must find someone to cover their responsibilities before they step away.

Over half (54.2 percent) of all workers had the ability to pause work (chart 5). Pause control varies considerably among occupational groups. Only 12.1 percent of protective service workers had pause control, versus nearly all management workers (97.1 percent). Slightly less than one-third (31.6 percent) of workers in transportation and material moving had pause control.

# Problem solving

Problem-solving measures how often workers are faced with a new or difficult situation, which requires them to think for a while about what to do next. The question is, “how often is the worker responsible for solving problems that take more than 5 minutes to think of a good solution?” The defining characteristics of problem solving are that there is no obvious, immediate solution to a problem or issue, and the worker must identify and weigh alternatives to arrive at a solution. The 5-minute period is intended to exclude more routine or simple decision-making or resolve issues that have a limited or minimal level of difficulty. When problem solving, workers must think of an answer themselves. The 5 minutes do not include the time it takes workers to find and get an answer from someone else or work through a standard protocol.

The problem-solving element also is defined by frequency, ranging from more than once per day to less than monthly, including never. Chart 6 indicates that 47.1 percent of architecture and engineering occupations require problem solving more than once per day versus 8.0 percent of construction and extraction jobs. For example, it is likely to be the case that complex questions at a construction site are handled by an architect or on-site engineer and not a construction worker.



The less-than-monthly, including never category of problem solving dominates nursing assistant jobs, with 90.7 percent of jobs requiring problem solving less than monthly, compared with 65.0 percent of nurse practitioner jobs requiring problem solving more than once per day. Similarly, 37.8 percent of paralegal jobs required problem

solving less than monthly, compared with 76.4 percent of lawyers that were required to problem solve more than once per day.

## Summary

The Occupational Requirements Survey is a rich source of information on jobs. Importantly, Wave 2 of these data contain information on the mental and cognitive demands of work, which fill an existing data gap. By just using education or specific vocational preparation as a proxy for the mental and cognitive demands, researchers can overlook important details in how work is performed. For example, the mode of the minimum level of education required for medical assistants and childcare workers is a high school diploma; however, for each of these occupations, a large share of jobs require more than basic people skills. Roughly three-quarters of jobs for medical assistants (74.7 percent) and childcare workers (73.3 percent) required more than basic people skills. In addition, although most customer service representatives are engaged in problem solving less than once per month (77.6 percent), 14.0 percent of these jobs require problem solving once per day or more often.

The design of ORS involves creating estimates from multi-year samples. Although the data referenced in this article uses the first 2 years of Wave 2, there are 3 additional years of data that will be included in the full Wave 2 dataset, resulting in an increasing level of detail with each release between now and the 2023 reference year data release.<sup>4</sup>

---

This **Beyond the Numbers** article was prepared by Kenneth Cluskey and Kristen Monaco, economists, Office of Compensation and Working Conditions, U.S. Bureau of Labor Statistics. Telephone: (202) 691-6198. Email: [Cluskey.kenneth@bls.gov](mailto:Cluskey.kenneth@bls.gov).

Information in this article will be made available upon request to individuals with sensory impairments. Voice phone: (202) 691-5200. Federal Relay Service: 1-800-877-8339. This article is in the public domain and may be reproduced without permission.

### RELATED ARTICLES

[The Occupational Requirements Survey: estimates from preproduction testing](#)

[Ability to work from home: evidence from two surveys and implications for the labor market in the COVID-19 pandemic](#)

[Wage and job-skill distributions in the National Compensation Survey](#)

### NOTES

<sup>1</sup> The 2019 Annual Statistical Report on the Social Security Disability Insurance Program is available at [www.ssa.gov/policy/docs/statcomps/di\\_asr/2019/index.html](http://www.ssa.gov/policy/docs/statcomps/di_asr/2019/index.html).

<sup>2</sup> The 2019 Annual Statistical Report on the Special Supplemental Income Program is available at [www.ssa.gov/policy/docs/statcomps/ssi\\_asr/](http://www.ssa.gov/policy/docs/statcomps/ssi_asr/).

<sup>3</sup> Information on ORS methodology can be found at the *BLS Handbook of Methods*: [www.bls.gov/opub/hom/ors/](http://www.bls.gov/opub/hom/ors/).

<sup>4</sup> For more information about the ORS design, see in the *BLS Handbook of Methods*: [www.bls.gov/opub/hom/ors/design](http://www.bls.gov/opub/hom/ors/design).

**SUGGESTED  
CITATION**

---

Kenneth Cluskey and Kristen Monaco, "Minds at work: what's required according to the Occupational Requirements Survey," *Beyond the Numbers: Special Studies and Research*, vol. 10, no. 5 (U.S. Bureau of Labor Statistics, March 2021), <https://www.bls.gov/opub/btn/volume-10/minds-at-work-whats-required-according-to-the-occupational-requirements-survey.htm>