



INTRODUCING INDUSTRIAL PSYCHOLOGY

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PSY 470 INDUSTRIAL
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WEEK I

INTRODUCTION

- Psychology is the scientific study of behavior and mental processes. Psychologists use systematic scientific methods in an effort to understand more about the hows and whys of behavior and human thought processes. Within the broad field of psychology are many specialty areas, each of which focuses on a different aspect of behavior.
- Industrial/organizational psychology is one of the more **applied** areas of **psychology**.
- Like it or not, we will all spend a big part of our lives working. Not only does work take up a large chunk of the day, it also often governs where we live, how we live, and the kinds of people with whom we associate.
- The **study of human behavior in work settings** is a large undertaking. Most jobs are quite complicated, requiring the use of a wide range of **mental and motor skills**.

INTRODUCTION

- **Industrial/Organizational (I/O) Psychology** the branch of psychology that is concerned with the **study of behavior in work settings** and the **application of psychology principles** to change work behavior.
- It is important to note that **“industrial/organizational psychology”** is the U.S. term; in Europe and in other parts of the world, this same area of specialization is referred to as **“work and organizational psychology”**.
- In the UK, it is often called **occupational psychology**, but this term is uncommon in most other countries.

Subdiscipline	Basic	Application to work	Reference
Biological	Biological bases of behaviour, neuropsychology, evolutionary psychology	The impact of simulated night shift work on insulin sensitivity and risk of Type 2 Diabetes	Bescos et al. (2018)
Cognitive	Thought processes such as attention, memory, learning, perception and language	The role of cued recall in recalling non-routine complex cognitive skills	Frank and Kluge (2018)
Developmental	The ways in which people grow and change psychologically throughout life	Improve the working lives of the over 50s in the UK	Altman (2015)
Individual differences	How people differ from each other psychologically and how those differences can be measured	The relationship between personality traits and exposure to bullying at work	Nielsen et al. (2017)
Social	How our behaviours, thoughts and emotions affect, and are affected by, other people	Virtual teams and the impact of virtuality on team communication	Marlow et al. (2017)

INTRODUCTION

- Some I/O psychologists study the **basic personnel functions within organizations**, such as the way workers are recruited and selected, how employees are trained and developed, and the measurement of employee job performance.
- Other I/O psychologists study the **psychological processes underlying work behavior**, such as the motivation to work and worker feelings of job satisfaction and stress.
- Still other I/O psychologists **focus on group processes in the workplace**, including the relationships between workplace supervisors and subordinates and how groups of workers coordinate to get the job done.
- Finally, some psychologists and other social scientists study the broader picture, including the **structure of work organizations** and how the **physical, social, and psychological environments** effect worker behavior.

THE SCIENCE AND PRACTICE OF I/O PSYCHOLOGY

- I/O psychology has two objectives:
 1. to **conduct research** in an effort to increase our knowledge and understanding of human work behavior; and
 2. to **apply** that **knowledge** to improve the work behavior, the work environment, and the psychological conditions of workers.
- Thus, I/O psychologists are trained to be both scientists and practitioners, in what is referred to as **the scientist-practitioner model**.
- The **scientific objective** of I/O psychology involves the **study and understanding of all aspects of behavior** at work. **As scientists**, I/O psychologists conduct research and publish the results of these efforts in professional journals.
- **As practitioners**, I/O psychologists may be called on to deal with specific work-related problems or issues. For example, an I/O psychologist might evaluate an employee testing program or conduct an employee attitude survey or some type of employee training program.

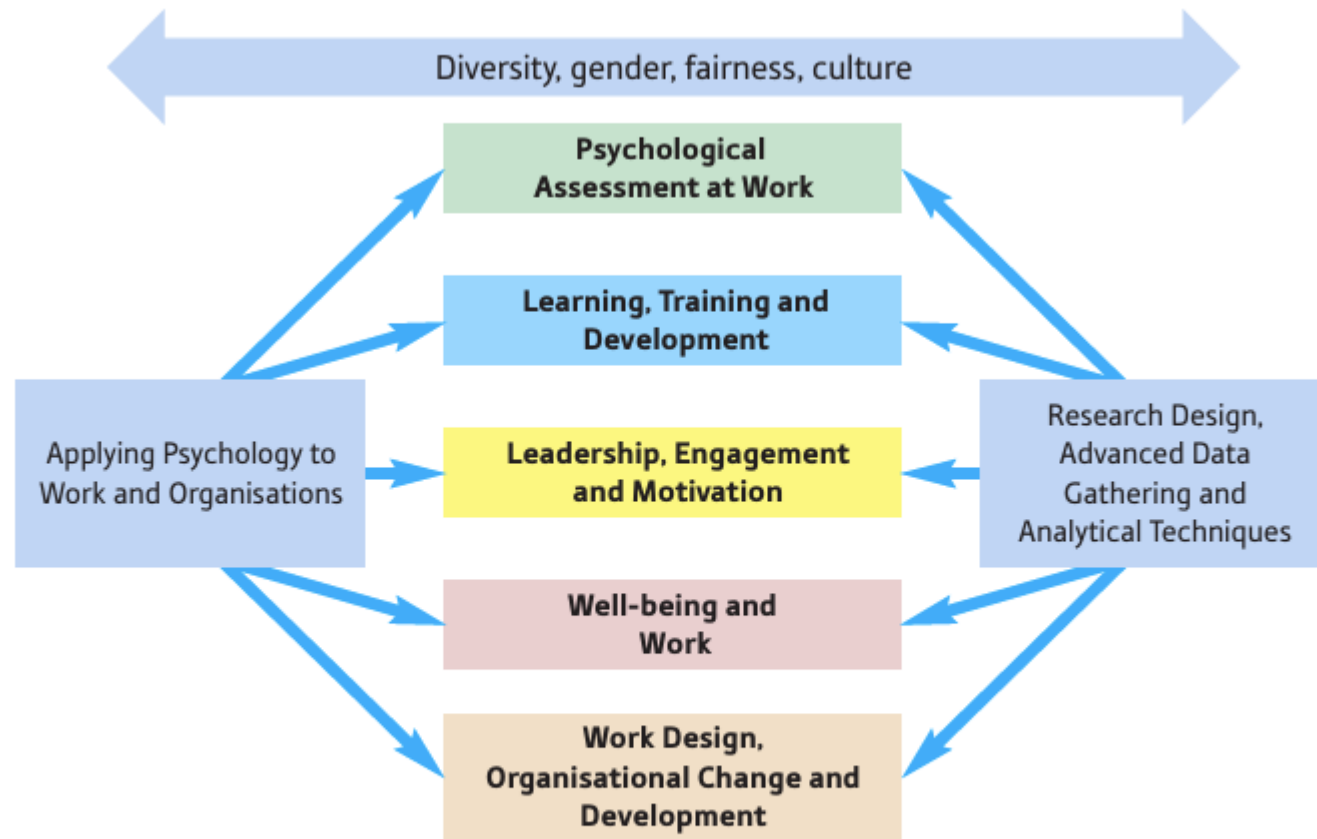


Figure 1.2 The five domains of work psychology

WHAT IS WORK PSYCHOLOGY?

- Work psychology has at least two distinct roots within applied psychology. One resides in a pair of traditions that have often been termed ‘fitting the person to the job’ (FPJ) and ‘fitting the job to the person’ (FJP).
- **The FPJ tradition** manifests itself in employee selection, training and vocational guidance.
- **The FJP tradition** focuses instead on the job, and the design of tasks, equipment and working conditions that suit a person’s physical and psychological characteristics.
- The FPJ and FJP traditions essentially concern the relationship between individuals and their work.
- The other root of work psychology can be loosely labelled **Human Relations (HR)**. It is concerned with the complex interplay between individuals, groups, organisations and work. It therefore emphasises social factors at work much more than FPJ and FJP



THE ROOTS AND EARLY HISTORY OF I/O PSYCHOLOGY

THE BEGINNINGS

- **Hugo Munsterberg** was an experimental psychologist who became interested in the design of work and personnel selection for jobs such as streetcar operator (Munsterberg, 1913).
- Another experimental psychologist who pioneered the field of industrial psychology was **Walter Dill Scott**, who was interested in studying salespersons and the psychology of advertising (Scott, 1908). Scott went on to become the first professor in this new field and started a consulting company to practice what was being learned from research.
- An engineer named **Frederick W. Taylor** believed that scientific principles could be applied to the study of work behavior to help increase worker efficiency and productivity. He was quite successful in applying his methods, which became known as time-and-motion studies.
- **Time-and-Motion Studies** are procedures in which work tasks are broken down into simple component movements and the movements are timed to develop a more efficient method for performing the tasks.



Figure 1.1 Frederick W. Taylor was the founder of the scientific management movement.

Source: Photograph by Bettmann/Getty Images.

THE BEGINNINGS

- Taylor's system for applying scientific principles to increase work efficiency and productivity eventually became known as scientific management.
- **Scientific Management** is a method of using scientific principles to improve the efficiency and productivity of jobs.
- Taylor and his followers, including the husband-and-wife team of **Frank and Lillian Gilbreth**, implemented the principles of scientific management and revolutionized several physical labor jobs by making the accepted work procedures more efficient and productive (Gilbreth, 1916).
- Unfortunately, **Taylor's philosophy was quite narrow and limited**. In his day, many jobs involved manual labor and were thus easily broken down and made more efficient through the application of principles of scientific management.
- **Today, jobs** (eg., creating computer software, developing an advertising campaign, or managing people) are much **more complex** and often require sophisticated problem-solving skills or the use of creative thinking.
- Although work efficiency and increased productivity are certainly important, I/O psychology **looks beyond efficiency** to examine the impact of work procedures and conditions on the working person.



Figure 1.2 Lillian Gilbreth was an influential early I/O psychologist.

Source: Harris & Ewing, Smithsonian Institution Archives, Accession 90-105, Image #SIA2008-1924, Wikimedia Commons.

WORLD WAR I and THE 1920s

- At the outbreak of World War I, **Robert Yerkes**, who was president of the APA, and a group of psychologists worked with the U.S. Army to create intelligence tests for the placement of Army recruits. The Army Alpha and Beta tests represented the first mass testing efforts and set the stage for future testing efforts.
- **The Alpha test** was used for those who could read; **the Beta test** was used for non-literate recruits.
- Throughout the 1920s, while the U.S. was experiencing tremendous industrial growth, industrial psychology began to take hold: **the first doctoral degree in industrial psychology** was awarded in 1921, and psychologists worked directly with industries as consultants and researchers (Katzell & Austin, 1992).
- It was also in the 1920s that the **first psychological consulting organizations** began (Walter Dill Scott in 1919, and James McKeen Cattell in 1921).
- (Difficult economic times in the early part of the 21st century led to organizational downsizing, and many larger organizations that employed I/O psychologists eliminated those positions and now outsource their work to consulting firms. As a result, consulting firms are thriving and are a major place of employment for I/O psychologists.)

THE GREAT DEPRESSION YEARS and WORLD WAR II

- During the 1930s, there was less opportunity for industrial psychologists to work with industries and businesses.
- Although industrial psychology continued to grow at a slower pace, an important development came out of this period from a group of **Harvard psychologists** who were conducting a series of experiments at a manufacturing plant of the **Western Electric Company in Hawthorne, Illinois**.
- Researcher **Elton Mayo and his colleagues** wanted to study the effects of the **physical work environment** on worker productivity.
- Focusing on a group of women who were assembling electrical relay-switching devices, he systematically varied the level of illumination in the room. He expected to be able to determine the **optimal level of lighting for performing** the task. **No matter what level the lighting was set at, productivity increased!**
- In other studies, Mayo systematically varied **the length and timing of work breaks**.

THE GREAT DEPRESSION YEARS and WORLD WAR II

- Mayo knew that every change in the work environment could not possibly be causing the steady rises in worker productivity. **Something else had to be affecting output.** Upon closer examination, he concluded that the workers were being affected **not by the changes in the physical environment**, but by the simple fact that they knew they were **being observed**.
- Although, in **the first example** discovered by Mayo, the “Hawthorne effect” **was positive**, resulting in increased productivity, this was not always the case. In **another** of his **studies**, work group **productivity fell** following the introduction of changes in the work environment. Because these workers believed that the results of the studies would lead to more demanding production quotas, they restricted output whenever they were being observed, thus producing a “**negative**” Hawthorne effect (Roethlisberger & Dickson, 1939).
- **Hawthorne Effect** refers to **changes in behavior** occurring as a function **of participants’** knowledge that they are **being observed** and their **expectations** concerning their **role as research participants**.

THE GREAT DEPRESSION YEARS and WORLD WAR II

- General conclusions reached by Mayo and his colleagues resulted in the development of the human relations movement, which recognized the importance of social factors and something called “**worker morale**” in influencing work productivity.
- **Human Relations Movement** is a movement based on the studies of Elton Mayo that emphasizes the importance of social factors in influencing work performance.
- According to Mayo, workers in repetitive or low-level positions (jobs that do **not provide satisfaction**) will turn to the **social environment** of the work setting for **motivation**.
- World War II contributed greatly to the growth of I/O psychology:
 1. The tremendous need for **state-of-the-art machinery**, and the increasing complexity of that machinery, was an important impetus for **human factors psychology** and for training soldiers to operate the equipment.
 2. I/O psychologists were called on to improve **selection and placement of military personnel**, continuing the work that psychologists had begun during World War I.

(**The Army General Classification Test**, a group-administered, pencil-and-paper test, was developed to separate recruits into categories based on their abilities to learn military duties and responsibilities. Psychologists helped the U.S. Office of Strategic Services (OSS)—the forerunner of today’s CIA—develop intensive assessment strategies for selecting candidates for dangerous espionage positions.)

THE POSTWAR YEARS

- The publication of a **new journal**, Personnel Psychology, in 1948.
- During the Cold War years of the 1950s and 1960s, the growth of the defense industry further spurred the development of a specialty area called **engineering psychology** (today referred to as **Human Factors Psychology**, or **Ergonomics**; this has become a separate discipline, but shares roots with I/O psychology).
- The 1960s through the early 1990s was a time when research and practice in I/O psychology flourished.
- Many of the topics currently associated with I/O psychology were developed and explored in depth during this period, particularly topics such as **motivation** and **goal setting, job attitudes, organizational stress, group processes, organizational power and politics, and organizational development**.
- Historical events during this time period that had major impacts on I/O psychology:
- **Civil Rights Act** of 1964, Title VII, banned **discrimination in employment** practices. Designed to protect underrepresented groups such as women and people of color from being unfairly discriminated against in work-related decisions, this legislation forced organizations to take a closer look at the ways people were selected for jobs.
- Subsequent civil rights legislation protected other groups from discrimination, including older people (**Age Discrimination in Employment Act, 1967** and 1978) and people with disabilities (**Americans with Disabilities Act, 1990**).

CONTINUING THE TIMELINE—I/O PSYCHOLOGY in THE 2020s and BEYOND

- Today, I/O psychology is one of the fastest-growing areas of psychology. I/O psychologists are involved in nearly every aspect of business and industry.
- The **mission** of the **Society for Industrial and Organizational Psychology (SIOP)**: To **enhance** human well-being and performance in **organizational and work settings** by promoting the **science, practice, and teaching** of I-O Psychology.
- **COVID-19**, caused **significant changes** in how many people's work was performed in 2020 and beyond.
- By August 2020, a quarter of households were impacted by **organizational downsizing** and **layoffs** (Parker et al., 2020).
- **Organizational Downsizing** is a strategy of reducing an organization's workforce to improve organizational efficiency and/or competitiveness.

CONTINUING THE TIMELINE—I/O PSYCHOLOGY in THE 2020s and BEYOND

- In addition to using downsizing, many organizations looked to **save costs** by using outsourcing of work—contracting with an external organization to accomplish tasks that were previously done, or could be done, within the organization (Davis-Blake & Broschak, 2009).
- **Outsourcing** is contracting with an external organization to accomplish work tasks. I/O psychologists are involved in helping to understand the effects of outsourcing.
- Employees, with an estimated 85% of people, started **working from home** part or full time in September 2020 (Brenan, 2020).
- Also in 2020, a **social justice movement** focused on **racial equity** began, paralleling the gender movement ignited by **#MeToo**.
- The **Black Lives Matter (#BLM) movement** was largely precipitated by the murder of George Floyd by police officers in Minneapolis and had an immense impact on society, the workplace, and academia (Bell et al., 2021). Many organizations worked to improve their **diversity and inclusion practices** in the months that followed.

Table 1.7**World of work changes and their implications for work psychology**

World of work changes	Implications for work psychology
<i>Diversity</i>	
<p>Ageing working population</p> <p>Increasing labour market participation and equality for historically disadvantaged groups</p>	<p>Learning, performance and engagement with work of older people</p> <p>Further development of fair selection procedures; the work experiences of members of disadvantaged groups; impact of diversity on workplaces and organisational performance</p>
<i>Technology</i>	
<p>More people working remotely (e.g. at home) using information and communication technologies (ICT)</p> <p>Computer and Internet-delivered forms of assessment.</p>	<p>Supervision and leadership of people not physically present; impact of isolation on work performance and satisfaction; effective virtual communication and teamwork</p> <p>Remote selection and assessment using the Internet; games-based assessment; remote appraisal and online training</p>
<i>Culture</i>	
<p>Increasing internationalisation of organisations and markets</p> <p>Selection and assessment in multi-national organisations</p>	<p>Cross-cultural comparisons of workplaces; working abroad; interpersonal and intercultural influence</p> <p>Appropriateness of selection procedures across cultures; translation and adaptation of assessments</p>

THE SKILLS OF A WORK PSYCHOLOGIST

- **Ethical conduct** is crucial to operating as a work psychologist. As an example, in the UK all practising psychologists are bound by a Code of Ethics and Conduct (British Psychological Society, 2018). This code requires practising psychologists to be guided by four principles:
 1. **Respect:** ‘Psychologists value the dignity and worth of all persons, with sensitivity to the dynamics of perceived authority or influence over persons and peoples and with particular regard to people’s rights’.
 2. **Competence:** ‘Psychologists value the continuing development and maintenance of high standards of competence in their professional work, and the importance of preserving their ability to function optimally within the recognised limits of their knowledge, skill, training, education, and experience.’
 3. **Responsibility:** ‘Psychologists value their responsibilities to persons and peoples, to the general public, and to the profession and science of Psychology, including the avoidance of harm and the prevention of misuse or abuse of their contribution to society.’
 4. **Integrity:** ‘Psychologists value honesty, probity, accuracy, clarity and fairness in their interactions with all persons and peoples and seek to promote integrity in all facets of their scientific and professional endeavours.’

Table 1.3**Selected work psychologist skills and examples of why they are important**

Active listening	If interviewing an employee as a form of data collection, a competent work psychologist should attend fully to what the employee is saying, ask appropriate questions and reflect on points being made
Mathematical ability	In order to understand data in company reports, in research papers, in national surveys etc., a good level of mathematical ability is needed
Oral expression	Being able to convey complex and technical ideas in psychology to non-psychology audiences is an essential skill for a work psychologist. Mostly, clients will not be cognisant of the theories, methods of analysis techniques
Statistical software	When collecting data, having knowledge of statistical analysis software packages helps the work psychologist interpret the data
Problem solving	When presented with an organisational problem by a client, being able to review information and evaluate options helps the work psychologist to develop actions plans and solutions

Closing case study

Assessing problems in recruitment and retention of nurses in a hospital unit

Recall the case presented at the start of the chapter:

You have been called in by the Clinical Lead of a unit operating within a hospital to help examine and assess why they struggle to recruit and retain nurses. The unit operates across three sites – each which deal with the same condition, although offer different services. There is a high turnover

rate of nursing staff and while the unit regularly advertises for replacement posts these tend to go unfilled. When filled, most new nursing staff leave within the first year. Additionally, trainee nurses tend not to select this unit as part of their practical experience, further restricting the nurse provision in the unit.

Now let us work through how you might approach this case using the knowledge you have gained within this chapter.

Skills

Active listening – you will need to listen appropriately to the Clinical Lead, lead nurses and other stakeholders at the start of the process to fully understand their needs. Further during data collection, active listening is vital in the data collection process.

Oral expression – you will need to convey psychological research/theory to the stakeholders in a manner which maps their specific needs and requirements.

Problem solving – you will need to understand the problem fully and develop a set of actions on how you are going to address the problem.

Evidence-based management – you will want to look at various sources of data (academic literature, relevant stakeholders, organisational context, and practitioners) and plan actions to obtain data from these sources.

Critical analysis – reflect critically on the information provided by the sources identified above.

Ethical practice – ensure throughout the whole project you conform to good ethical practice. This is in your dealings with the Clinical Lead and in the data collection process. Think about security of data, informed consent of research participants, ensuring confidentiality of information (especially that provided by nurses), plan for a debrief and how findings will be disseminated to all parties.

Research plan

You have chosen to adopt a **qualitative approach** for this project as you are interested in understanding the experiences of current nurses as a way of identifying why there is a problem in recruitment and retention. Your plan is to run **a series of interviews with nurses** from the different sites, at different levels, and analyse the findings via a **thematic analysis methodology**. At present you are unsure of the approach to take and how to frame the interview. You therefore decide to complete **a review of research literature** initially searching academic and nursing specific references for literature on problems in retention of nurses. Several **specific journal articles** as well as opinion pieces are highlighted, and it is evident from these that **work stress is the dominant explanatory mechanism** for understanding problems in recruiting and retaining nurses. So, what began as a recruitment problem, is now moving more towards a **well-being angle**. You then focus the review within work stress generally and come across the **Job Demands-Resources Model** (Bakker and Demerouti, 2007; see Chapter 8) as a framework for positioning your data collection plan. As a result, you are focused more within the constructivism position, albeit your interview and themes will be informed by the **JD-R model** (this is taking a **deductive approach**). You can see here how a positivism and constructivism dichotomy is not always easy to visualise in practice. You report back to the Clinical Lead as well as senior clinical staff your proposed plan of action, gain their approval and set a timeline for data collection. In liaison with unit managers at the three sites you arrange for dates for data collection to take place with nurses who have volunteered to be a part of the study. You compose an **ethical**

protocol, design your interview schedule based on the JD-R model and send to unit managers for their approval. You decide to trial the interview on a unit manager and as a result, make some minor changes. Data collection then starts. You arrange to meet participants in a quiet room away from the unit, **explain the research is confidential** and how the interview will run (plus how data will be used going forward), detail that the interview is recorded but once transcribed the recording will be deleted. You run your 10 interviews in each unit and start the process of transcribing the interviews. You then adopt Braun and Clarke's stage approach to thematic analysis and develop an **initial thematic map illustrating the job demand and job resource themes** within the role. You provide an **initial short report to the Clinical Lead** and present your findings to the **management team**. You then develop a more detailed report with **specific recommendations** that is sent to the Clinical Lead and advise that the initial summary report is shared with all staff in the units. You offer to support the recommendation made and suggest that **a follow-up quantitative study** testing the links between JD-R and turnover intention is undertaken.

The role of an experienced work psychologist!



WHAT MAKES INDUSTRIAL/ORGANIZATIONAL PSYCHOLOGY DIFFERENT?

MEASUREMENT AND THE LAW

MEASUREMENT

- Many I/O psychologists use their skills to help organizations with human resource practices such as selection of employees and performance evaluation.
- Any type of measurement instrument used in industrial/organizational psychology, including those used in employee screening and selection, **must meet certain measurement standards** related to reliability and validity.
- **Reliability:** the consistency of a measurement instrument or its stability over time.
- **Validity:** a concept referring to the accuracy of a measurement instrument and its ability to make accurate inferences about a criterion.

RELIABILITY

- Reliability refers to the consistency or stability of a measure.
- This includes **test– retest reliability**, which measures whether someone gets a similar score when taking a test on separate dates, and
- **parallel forms reliability**, when different versions of a test are compared and test takers are expected to perform similarly across forms.
- There is also another form of reliability called **internal consistency**, which examines whether each item on a test correlates with the other items. This can be tested by dividing the test in half to use **split-half reliability** or determining the average intercorrelation among all items of the test to calculate **Cronbach's alpha**.

VALIDITY

- Equally important to measurement is the validity of a measure, which refers to whether a test measures what it says it is measuring.
- This requires **content validity**, which means that a measure captures one's ability to perform the job, and
- **construct validity**, which refers to whether a measure captures what it is supposed to measure.
- Finally, there is **criterion-related validity**, which relates to whether scores on a measure predict some future criterion.

LAW

- In theory, employers can hire whomever they choose, as long as their decisions do not discriminate on the basis of categories such as race and gender.
- If an organization is accused of discrimination, it must show that its hiring decisions were based on one's ability to perform the job.
- But how can an organization demonstrate that it was hiring on the basis of one's ability to perform the job if it has not established the requisite behaviors and skills required to do the job?
- As a result of the **Civil Rights Act**, a federal agency, the Equal Employment Opportunity Commission (EEOC), was created to ensure that employers' personnel selection and placement procedures complied with the **antidiscrimination laws**.
- **Protected Class:** characteristics of groups for which discrimination is prohibited, including sex, race, religion, color, national origin, persons over 40, persons with physical or mental disabilities.
- **Affirmative Action:** the voluntary development of policies that try to ensure that jobs are made available to qualified individuals regardless of sex, age, or ethnic background.



OPPORTUNITIES FOR I/O PSYCHOLOGISTS TO SHAPE THE FUTURE

REMOTE WORK

- The vast majority of workers had to change the ways they did work.
- I/O psychologists can assist with identifying ways to most effectively **attract, select, and hire workers** in a remote environment (Phetmisy & King, 2021; Rudolph et al., 2021).
- I/O psychologists can help companies determine which workers should be remote, how much of one's work time should be spent in the office, and how and when **different combinations of employees** should be working together in the office.
- How to motivate employees in a **virtual work environment**, how to lead others, and how culture will shift, are all open doors for future inquiry.

DIVERSITY AND INCLUSION

- I/O psychologists must be well versed in topics related to diversity and inclusion, such as:
 1. creating “**family-friendly**” **policies** such as employer-sponsored childcare and extended family leave (Grandey, 2001; Halpern & Murphy, 2005),
 2. attracting and retaining **top talent**,
 3. providing training to **decrease microaggressions** (Williams, 2020), sexual harassment, and racial discrimination (Hayes et al., 2020)
- Many top scholars argue that I/O psychologists must step in to contribute to progress in **outreach and education** (Roberson et al., 2020; Ruggs & Avery, 2020).
- I/O psychology has had an important impact in how we select, train, develop, and motivate employees; there is **huge potential for I/O psychology** to play an even bigger part in helping to **improve work performance** and make the conditions for workers **better, more rewarding, and equitable**.

CONSLUSION

- Today, industrial/organizational psychology is a rapidly growing field that has the opportunity to assist companies with two of the most pressing issues facing organizations today:
 1. how to **redesign the workplace** for a more **virtual environment**, and
 2. how to **reduce bias and discrimination** to create a **more equitable workplace**.