

Taking Flight With Job Design: An Experiential Exercise

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Abstract

In this article, we provide instructors with a ready-to-use experiential exercise to teach the Job Characteristics Model (JCM), ideally suited for use in undergraduate management courses. We begin with a brief introduction and literature review of the JCM, followed by video links and a facilitation guide to introduce the topic. The engaging taking flight exercise includes learning objectives, an overview of the exercise, detailed implementation instructions, a student handout, and a list of materials and technology needed to guide the instructor. The exercise concludes with a debrief and reflection worksheet offering questions to engage students in a lively discussion about the application of the JCM to the exercise and to their own job experiences.

Keywords

Job Characteristics Model, job design, experiential learning, motivation, work outcomes, paper airplane

Job design is a fundamental theory pervading the labor practices and work outcomes (e.g., motivation, satisfaction, performance, turnover) of almost every organization. Management students will experience elements of job design upon employment but may lack an understanding of why the application of the Job Characteristics Model (JCM) is important. Through this exercise, students gain an appreciation of job design.

Students will apply the JCM concepts through a team competition by designing, assembling, and flying paper airplanes. They will organize their team, assign roles for each member, design planes, and complete their tasks while learning about and by applying the JCM.

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This activity includes straightforward instructions and low-tech and easy-to-organize supplies and engages students while generating a lively discussion around the competition, augmenting student learning about job design. Utilizing the activity and video links provided, students develop an understanding and frame of reference to identify and remember each of the job characteristics. Thus, students can learn job design concepts in a low-stakes, fun environment where they experience these job characteristics in real time.

This exercise has been used in undergraduate principles of management, organizational behavior, and human resource management courses. It is generally designed for a 75-minute, face-to-face class session, but the timing can easily be adjusted (see Appendix A). The ideal class size is approximately 40 students. Students will need to be in the same physical location.

Theoretical Foundation

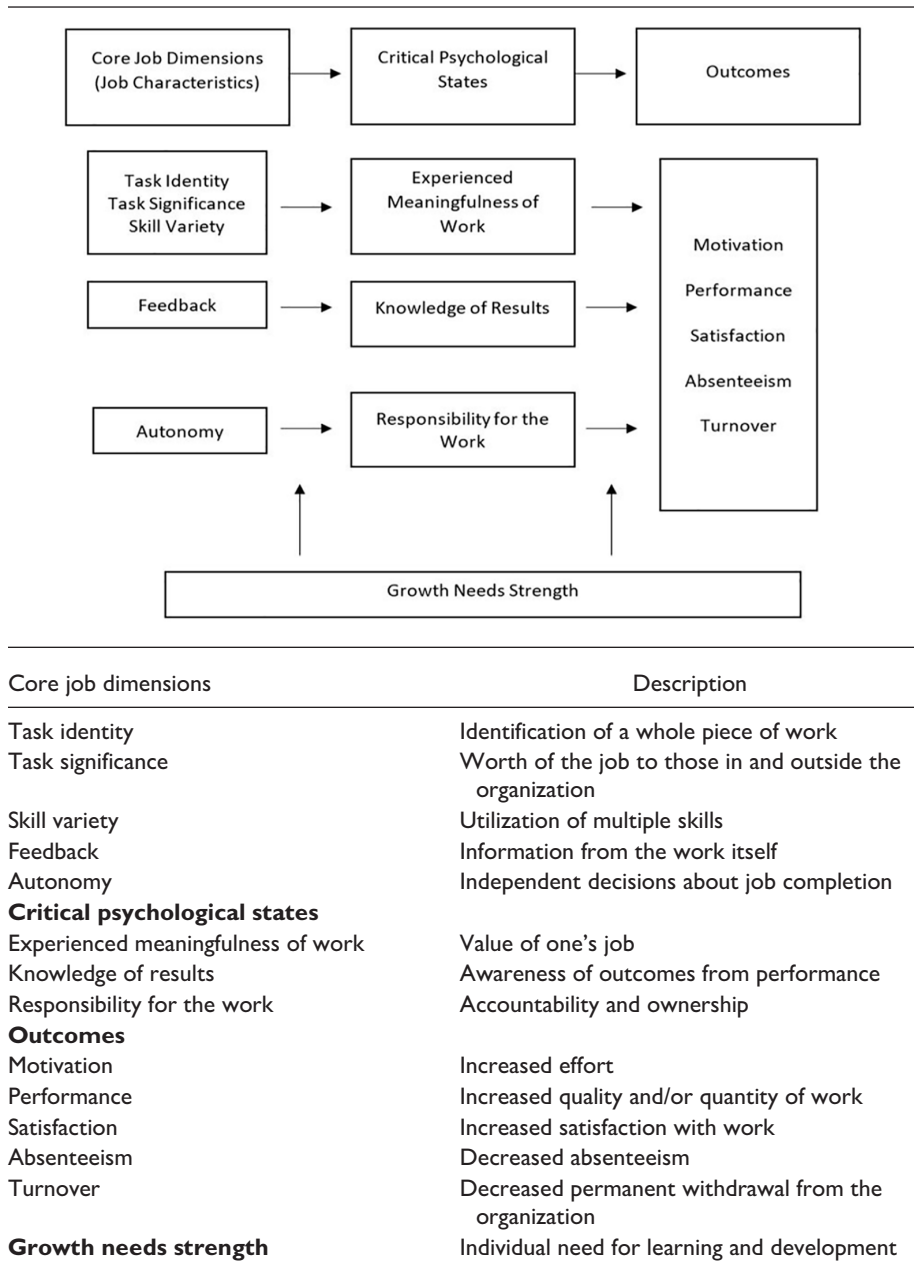
The JCM is a pillar in the field of organizational behavior (Hackman & Oldham, 1975; see Table 1). Well-established and supported (Humphrey et al., 2007), it has provided insights for researchers and practitioners. Scholars agree that few topics in management have garnered more attention than job design (Oldham & Fried, 2016).

Traditional job design is useful as it is related to increasing positive outcomes and mitigating negative outcomes. Often, jobs need to be redesigned to be a good fit for employee work outcomes (Leiter & Maslach, 2023). According to the JCM, five core job dimensions (skill variety, task identity, task significance, autonomy, and feedback) lead to critical psychological states (experienced meaningfulness of work, experienced responsibility, and knowledge of results). Consequently, these lead to work outcomes such as increased work motivation, performance, satisfaction, and reduced absenteeism and turnover, all moderated by growth needs strength (GNS; Hackman & Oldham, 1976; Humphrey et al., 2007). See Table 1 and Appendix B for a more detailed literature review of the JCM.

Learning Objectives

By the end of this exercise, students should be able to:

1. Identify and explain each of the job dimensions of the JCM (skill variety, task identity, task significance, autonomy, feedback).
2. Identify and describe how each job dimension relates to work outcomes.
3. Compare and contrast how individuals perceive the JCM in terms of the core job dimensions, critical psychological states, and work outcomes in this experiential exercise.
4. Evaluate job dimensions and how they apply to job-related situations and real-world tasks.
5. Discuss how the JCM contributes to work outcomes in an applied context and in the workplace.

Table 1. Job Characteristics Model & Descriptions Reproduced From the Work of Hackman and Oldham (1975).

Part I: Reviewing the JCM (20–25 Minutes in Total)

First, review with students Table 1 and define each element of the model. It is important to explain to students the link between theory and practice. Select key points from Appendix B to review with students. Explain that the JCM is critical for managers and employees because it is an effective tool that often requires no budget to improve a dissatisfying job by changing its design.

Short video clips demonstrating each of the job's characteristics are helpful to offer students the opportunity to observe and understand an applied example of each job dimension in a work context. Video clips and debrief questions are included in Appendix C. It might be helpful to create a slide presentation to show Table 1 and to have each clip queued on the day of the presentation. Following each clip, ask the students whether the video represents high or low levels of the respective characteristic. Prompt students to provide examples of jobs corresponding to each characteristic.

Often, students will disagree about whether a job is high or low on a specific characteristic. For example, one student may say that tasks of a fast-food worker have low task significance (i.e., fast-food workers may not believe they make a meaningful difference in others' lives), but another student may suggest high task significance (i.e., fast-food workers help feed others after a long day at work or bring joy to children who find a toy in their meal). The realization that individuals may perceive these characteristics differently is an important insight and facilitates a discussion about how perceptions influence the way an individual views a job.

After students identify the job characteristic, have them identify and describe the critical psychological state related to each (e.g., task significance and experienced meaningfulness for the fast-food worker) and the work outcome (e.g., job satisfaction). Help them understand and discuss how and why this is related to the job design.

To extend this discussion even further, acknowledge that individuals are not merely recipients of their job roles but can shape their jobs based on the way they include/exclude certain conceptions, tasks, and relationships associated with the work. This is known as job crafting: cognitive, task, and relational (Wrzesniewski & Dutton, 2001). For example, automobile mechanics may believe that their jobs help families maintain transportation to ensure they reach their desired destination (e.g., work, vacation; cognitive crafting), add job responsibilities (e.g., follow-up phone calls; task crafting), and seek customer relationships (e.g., customer satisfaction and retention survey; relational crafting). It should be emphasized that the JCM and job crafting are effective tools that can be used to impact motivation, performance, satisfaction, absenteeism, and turnover, among other important work outcomes, based on redesigning or reorganizing work. See Appendix B for more details about job crafting. It may be beneficial to discuss job crafting in the next session, or in a discussion board depending on time constraints.

Part II: Running the Exercise (20–30 Minutes in Total)

Transition to the JCM paper airplane activity. Details on materials, technology needed, setup, and other considerations for this activity are in Appendix D. Ensure you have

created the landing zone and take-off line for the competition. Distribute the Appendix E student handout to students. Frequently asked questions for this activity are in Appendix F. Below is a list of steps to follow:

Team Assignments and General Overview (3–5 Minutes)

Assign teams of 3–5 students (or allow students to choose their teams).

Read the following general overview of the taking flight activity aloud to the class before starting the research and development (R&D) time:

- Each team has decided to enter the paper aviation industry, and during the R&D time, each team will determine a plane design, corporate logo, and division of labor (plane maker, artist, pilot).
 - Determine the plane design: create the best-flying paper *airplane* design using online resources and/or trial and error.
 - Determine the corporate logo: design a simple, unique corporate logo to be drawn on each of the team's planes to identify which plane corresponds to each team in the landing zone to receive credit.
- Determine the division of labor:
 - Plane maker: build airplane prototypes
 - Artist: design a simple, unique corporate logo to draw on each plane
 - Pilot: test the paper airplane prototypes

Note: Team members can decide to have each member perform all roles, more than one role, or only one role each, but the mass-produced planes must be the *one* design and the *one* logo.

- During R&D, teams will test prototype(s) by throwing the planes from the take-off line to the landing zone, choosing which plane design the team will mass produce, determining roles for making the airplanes (see above), and designing a simple, unique corporate logo for the planes. At the end of the R&D time, submit only *one* prototype with the corporate logo per team to be used for the competition.
- During the competition, each team will mass produce the one selected plane design with the corporate logo. Team members will enact the roles of plane maker(s), artist(s), and pilot(s). Plane makers and artists produce as many planes with logos as possible. Pilots fly as many airplanes as possible into the landing zone. Only one pilot throws at a time from the take-off line. Pilots will stand in a single-file line to throw their plane at the take-off line. No planes can be reused once they have been thrown. They must look like planes (i.e., no paper wads).

R&D Time (10 Minutes)

Please see Table 2 for a complete task list for student teams (print for student groups, if desired). Provide students with the first set of paper. Set and start the R&D timer for

Table 2. Agenda for R&D Time.

Teams will have 10 minutes to perform R&D, to complete the following:

Paper airplane design	Determine the <i>one</i> most effective plane design (paper airplane designs can be found online and/or through trial and error).
Corporate logos	Design <i>one</i> corporate logo that will be drawn on each of the team's planes (this is to identify which plane corresponds to each team). Create a unique team logo to receive credit when flying planes in the landing zone.
Division of labor	Determine the division of labor (plane maker, artist, pilot): (a) plane maker: build airplane prototypes, (b) artist: design a corporate logo to draw on each plane, (c) pilot: test the paper airplane prototypes. Note: Team members can decide to have each member perform all roles, more than one role, or only one role each, but the mass-produced planes must be the <i>one</i> design and the <i>one</i> logo.
Competition strategy	Determine the strategy for the competition (i.e., how to mass produce airplanes and division of labor).
At the end of 10 minutes	Submit the <i>one</i> paper airplane design the team will use to mass produce in the competition Submit the <i>one</i> unique corporate logo the team will use in the competition Determine the division of labor.

10 minutes, during which teams will create and test their potential plane styles. It may be helpful to show an internet *timer* (Sleeth, 2013) to the class. After 10 minutes, discard all airplanes (in the recycle bin) except the *one* plane each team has identified as their competition design. Discarded planes cannot be reused.

Next, re-affirm that teams have determined their division of labor (e.g., plane makers, pilots, artists), a corporate logo, and a plane design. Please see Table 2 for a complete task list for student teams (print for student groups, if desired).

Competition Instructions (2–3 Minutes)

Provide the second set of paper for the competition and announce the following instructions:

Teams have 5 minutes for the competition. Teams must enact their agreed upon division of labor. Only airplanes with logos that land in the designated landing zone count toward the team's final score. Pilot(s) from each team will stand single file behind the take-off line, and only one pilot will quickly throw at a time; first come, first served. Once a plane has landed inside or outside the landing zone, the plane cannot be used, thrown again, or picked up; a new plane must be created and thrown. The

airplanes must look like planes (i.e., no paper wads). The winner is the team with the most planes in the landing zone (identified by their team logos).

Competition (5 Minutes)

Set and start a *timer for 5 minutes* (Peet, 2020) for the competition. As teams mass produce and fly their planes, provide them with verbal feedback and encouragement. After the 5 minutes, have everyone stop, and tally the points per team based on the number of airplanes identified by their logo in the landing zone. The winner is the team with the most points. Announce the winner. Then, collect all the airplanes with the students' help and place the planes in a recycle bin.

Part III: Debriefing the Exercise (15–25 Minutes)

Provide students with the Debrief and Reflection of JCM Experiential Exercise worksheet (see Appendix G facilitation guide; Appendix H student worksheet). Within their teams, have them answer the questions and include supporting examples with details, which will depend on their division of labor. Then, engage the class in a brief discussion to include the related critical psychological states and outcomes to signify JCM importance (e.g., meaningfulness of results, job satisfaction, etc.; Humphrey et al., 2007). This can be extended by asking if they were motivated by the task(s) or if they would redesign the job (or the class!) in a different way. In addition, students can think about how the JCM applies to their current employment using the Debrief and Reflection of the JCM Applied to My Current Job worksheet (see Appendix I facilitation guide; Appendix J student worksheet).

Conclusion

As organizations increasingly prioritize attracting and retaining top talent, awareness of job design among managers and employees is critical to achieving their goals. This activity encourages students to be active participants by applying the JCM in making decisions regarding their work tasks to discover how they might influence important work outcomes. Understanding job design is essential for cultivating an engaged workforce, and this learning activity is an experiential way to demonstrate this concept to students.

Appendix A

Timing

The amount of time recommended for the activity shown in each step of the experiential exercise is as follows:

Part I: Review the JCM (brief recap of the JCM and videos*) (20–25 minutes)

*Note: Videos can be watched prior to the course session as a discussion board or in the previous course session

Part II: Running the Exercise (20–30 minute)

- 3–5 Minutes for general instructions and team assignments
- 10 Minutes for R&D
- 2–3 Minutes for competition instructions
- 5 Minutes for the competition

Part III: Debriefing the Exercise (15–25 minutes)

15 – 25 minutes Part III: Debriefing the Exercise
 55 – 80 minutes TOTAL, with flexibility (see note below)

A note about timing: The experiential activity is flexible and can be easily adjusted to accommodate the following: various class durations, engagement levels of the students, and multiple class sizes. If timing is a concern, the video links within this activity may be provided in an online discussion board separate from the class session, or during the previous or following class session. Alternatively, instructors could show segments of each video. For example, the “Making a Bed” video (Steen, 2017) demonstrates that the military provides little autonomy for even the most basic activities. The entire clip is not necessary to illustrate this point.

Appendix B*Literature Review of JCM and Impact on the Workplace*

The Job Characteristics Model (JCM) is a key work design perspective in organizational behavior research (Fried & Ferris, 1987; Hackman, 1980; Hackman & Oldham, 1975, 1976; Parker et al., 2017). Work design, as a field of study, began after scientific management when employees were dissatisfied with routine and simplified jobs. An employee’s job is made up of a “set of task elements grouped together under one job title and designed to be performed by a single individual” (Ilgen & Hollenbeck, 1992, p. 173). Researchers were greatly interested in the human relations management approach to examining ways to organize work to improve employee motivation as a work outcome (Parker et al., 2017). In addition, other important work outcomes were being studied to include job satisfaction, absenteeism, and performance. Even after more than 100 years of research on job design, the way jobs are designed has important implications for employees (Parker et al., 2017).

Hackman and Oldham (1975) initially developed the JCM to determine if motivation and productivity could be improved through important aspects of the job design. In addition, the Job Diagnostic Survey (JDS) was created to measure the motivational aspects and outcomes of redesigning jobs (Hackman & Oldham, 1975). According to the JCM, the general idea is that core job dimensions lead to critical psychological states resulting in important work outcomes, which may be influenced by an individual’s GNS (see Table 1).

Specifically, the five core job dimensions are skill variety, task identity, task significance, autonomy, and feedback. Skill variety, task identity, and task significance lead to

experienced meaningfulness of work. Autonomy leads to experienced responsibility, and feedback leads to knowledge of results. These result in work outcomes of job satisfaction, motivation, performance, absenteeism, and turnover. Next, we will review the elements of the model. Then we will discuss the importance of the JCM in the workplace.

Core Job Dimensions

The five core job dimensions of the JCM include skill variety, task identity, task significance, autonomy, and feedback.

Skill variety is “the degree to which a job requires a variety of different activities in carrying out the work, which involve the use of a number of different skills and talents of the employee” (Hackman & Oldham, 1975, p. 161). If an individual uses only one skill repetitively, then that could increase boredom. However, if an employee needs to explore new skillsets or challenge themselves by using different skills on the job, they may find their job more meaningful.

Task identity is “the degree to which the job requires completion of a ‘whole’ and identifiable piece of work—that is, doing a job from beginning to end with a visible outcome” (Hackman & Oldham, 1975, p. 161). When a worker can identify an entire piece of work from beginning to end, they may find more meaning in their job because they can see the finished product of their work.

Task significance is “the degree to which the job has a substantial impact on the lives or work of other people—whether in the immediate organization or in the external environment” (Hackman & Oldham, 1975, p. 161). This dimension is enhanced when the worker understands that their job is important because it can directly affect the well-being of those internal and external to the organization in positive ways, which results in experienced meaningfulness.

Autonomy is “the degree to which the job provides substantial freedom, independence, and discretion to the employee in scheduling the work and in determining the procedures to be used in carrying it out” (Hackman & Oldham, 1975, p. 162). Workers who have a high level of autonomy are allowed time and flexibility to make decisions about aspects of their work without constant direction. Because they are given this independence, they will experience responsibility for the outcome.

Feedback is “the degree to which carrying out the work activities required by the job results in the employee obtaining direct and clear information about the effectiveness of his or her performance” (Hackman & Oldham, 1975, p. 162). Workers can determine their performance level from the job itself. For this reason, a worker will have knowledge of results.

Critical Psychological States

Each of the five core job dimensions lead to the following critical psychological states: experienced meaningfulness of work, experienced responsibility for outcomes of the work, and knowledge of results. Research has found general support for these assumptions within the model; however, results have been mixed (Fried & Ferris, 1987; Johns et al., 1992; Parker et al., 2017; Renn & Vandenberg, 1995).

Experienced meaningfulness of work is “the degree to which the employee experiences the job as one which is generally meaningful, valuable, and worthwhile” (Hackman & Oldham, 1975, p. 162). This is the combination of skill variety, task identity, and task significance. As workers develop and utilize multiple skills, complete whole pieces of work, and perceive that their work makes a difference in the lives of others, they will experience more meaning in their work.

Experienced responsibility for the outcomes of the work is “the degree to which the employee feels personally accountable and responsible for the results of the work he or she does” (Hackman & Oldham, 1975, p. 162). This is the result of autonomy. By allowing workers the independence to make decisions on their own about the way they conduct their work, they experience responsibility and ownership.

Knowledge of the results is “the degree to which the employee knows and understands, on a continuous basis, how effectively he or she is performing the job” (Hackman & Oldham, 1975, p. 162). This is a function of feedback. When workers can see the actual outcomes of the work they completed, they have clear knowledge about their performance on the job. It is worth noting that Oldham and Hackman (2010) stated that feedback was from the job itself, and the JCM did not incorporate a specific social component; therefore, the feedback characteristic neglected a social aspect.

Outcomes

Outcomes established in the literature related to the JCM and job design are higher motivation, performance, and job satisfaction, as well as reduced absenteeism and turnover (Fried & Ferris, 1987; Humphrey et al., 2007; Parker et al., 2017). Higher levels of the core job dimensions and critical psychological states should lead to better outcomes.

Affective reactions to the job measured by the JDS consisted of internal work motivation, general job satisfaction, and other items of more specific measures of satisfaction (Hackman & Oldham, 1975, p. 162). Internal work motivation is “the degree to which the employee is self-motivated to perform effectively on the job—that is, the employee experiences positive internal feelings when working effectively on the job, and negative internal feelings when doing poorly” (Hackman & Oldham, 1975, p. 162). Job satisfaction is a description with “how satisfied and happy an employee is with the job” (Hackman & Oldham, 1975, p. 162). Hackman and Oldham (1975) also asked individuals specifically if they were satisfied with job security, pay and compensation, peers and coworkers (to measure social satisfaction), and personal growth and development (growth satisfaction).

The original JDS did not measure productivity or employee perceptions of performance or productivity, absenteeism, or turnover directly (Hackman & Oldham, 1975).

Growth Needs Strength

GNS is “an opportunity for personal growth and development on the job” (Hackman & Oldham, 1975, p. 163). Individuals are asked whether they would like certain conditions

available in their jobs (e.g., opportunity to make independent decisions) and certain preferences present at their jobs (a job with pleasant coworkers). Loher et al. (1985) found that GNS was moderate, but only for those who were high on GNS, and it was situational. However, in more recent studies, the results of the moderating effect of GNS for the JCM have been weak, and/or the JCM has been valid without the moderating effects of GNS (Fried & Ferris, 1987; Graen et al., 1986; Renn & Vandenberg, 1995).

JCM Importance and Application in the Workplace

Job design is one way to motivate employees in the workplace. It might also be helpful to examine elements of the job to determine if a job dimension could change to increase motivation or if a job could be redesigned altogether. This means that tasks could be re-evaluated to enhance the characteristics resulting in increased work outcomes (Humphrey et al., 2007). When managers and employees examine the work design, it can help the employee and organization achieve important work outcomes.

In addition, job design has other applications in the workplace. One application of redesign is job enrichment (Hackman & Oldham, 1975). Job enrichment encompasses expanding a job by providing an individual the opportunity to determine the planning, method, and review of their work from start to completion, essentially utilizing all five of the core job characteristics. Creating this type of job design increases their critical psychological states leading to the work outcomes. Tasks and workflows are re-evaluated to determine if employees' skills are better aligned with the job characteristics.

Job rotation is another work redesign method that involves rotating an individual periodically through different jobs with similar skill requirements to prevent boredom and monotony (Hackman, 1980). This will prevent the individual from being unstimulated at work; however, if the new position does not create enough stimulation, then there may be few, if any, positive results (Hackman, 1980). Job rotation combined with job enrichment may lead to cross-training benefits for the individual and the organization.

Job crafting (Wrzesniewski & Dutton, 2001) has been another important outcome of work design. Job crafting is defined as "the physical and cognitive changes individuals make in the task or relational boundaries of their work" (Wrzesniewski & Dutton, 2001, p. 179). Individuals who proactively engage in job crafting are essentially initiating the JCM by redesigning their jobs through the actions of changing the task boundaries, in the work itself, or involvement in the process, which may have resulted from individual differences in dispositions or strong social needs (Kulik et al., 1987; Oldham & Hackman, 2010).

Humphrey et al. (2007) conducted a meta-analysis to examine and expand the research by Hackman and Oldham. They also updated the term "job" design to "work" design to include the social characteristics and work context characteristics. Humphrey et al. (2007) expanded the JCM to a work design model updated to reflect additional work design characteristics that would result in an increase in desired behavioral and satisfaction outcomes (i.e., job performance and job satisfaction) and a decrease in negative behavioral outcomes (i.e., absenteeism and turnover). In the expanded model,

there were additional attitudinal outcomes (i.e., organizational commitment, etc.), as well as role perception and well-being outcomes. Not only did these authors find strong support for the original JCM, but they also showed that there are opportunities to consider the work context and social support when (re-)designing jobs. Social support contributed to subjective performance assessments, turnover intentions, and satisfaction (Humphrey et al., 2007; Oldham & Hackman, 2010). However, Oldham and Hackman (2010) suggest that when focusing on the “job” design, the five core characteristics have not changed, but when expanding to a “work” design, social characteristics of jobs may be secondary or primary characteristics for motivational outcomes.

More recent research has shown the JCM used in applied settings. For example, Park (2017) suggests using the JCM in a performance-evaluation context; however, the work outcome proposed was performance appraisal rating accuracy. By applying the JCM in a performance evaluation context, it was posited that based on rater motivation theory, this would be an opportunity to reveal motivational factors that affect rater accuracy and job characteristics that may affect performance.

There have been calls for researchers to integrate the JCM with other work design perspectives such as sociotechnical systems, job demands-control model, job demands-resources model, and role theory research. Some researchers have expanded the elements in the JCM to variables such as task interdependence or social support (Morgeson & Campion, 2003; Parker et al., 2001). Although Hackman and Oldham (1975) created the JDS to measure the JCM, Morgeson and Humphrey (2006) created the Workplace Design Questionnaire (WDQ) to measure characteristics across multiple work design perspectives (Parker et al., 2017). Future research will also need to consider the impact of artificial intelligence, computerization, hybrid/work-from-home, and virtual reality work design.

Conclusion

The JCM has been the dominant model of work design for many years (Parker et al., 2017). Interestingly, looking ahead at the very *way* work will be completed (i.e., technology, artificial intelligence, etc.) may remove or reduce some of the decision-making and flexibility for *how* the work is designed. Job and work design must be deliberate and consider the environments in which the work is conducted to ensure critical psychological states and important work outcomes benefit employees and organizations.

Appendix C

Video Examples and Debrief [LO #1].

Job characteristic	Video clip	Questions	Debrief
Skill variety	Working with Robots at Amazon (1:42) (Amazon, 2021)	Does this represent high or low skill variety? Why or how?	It depends; factory workers do routine tasks, but now may use different skill sets working with robots.
Task identity	Guitar Build Timelapse (0:42) (Madson, 2014)	Does this represent high or low task identity? Why or how?	High; he is building a complete guitar. To increase his task identity, he could carve the wood or sell the guitar to customers.
Task significance	TSA on the Job (1:57) (TSA, 2016)	Does this represent high or low task significance? Why or how?	High; the TSA must ensure the safety of all individuals and cargo.
Autonomy	Making a Bed in Military (3:26) (Steen, 2017)	Does this represent high or low autonomy? Why or how?	Low; the military has low levels of autonomy for lower-level recruits.
Feedback	Key & Peele Cooking Show (1:30) (Atencio, 2020)	Does this represent high or low feedback? Why or how?	This clip shows feedback, but the chef does not know how he performed the task compared to others.

Follow-up Discussion Questions: [LO #2]

How might each of the videos representing the core job dimensions lead to the associated critical psychological state or work outcome?

- For example, although students only discuss skill variety with the “Working with Robots at Amazon” video, can students perceive experienced meaningfulness in the work? What types of work outcomes will result? Can they identify and describe any other job characteristics, psychological states, or outcomes?

Have students reflect as you watch each video. Ask them to identify and describe an additional core job dimension. Then, extend the conversation by having them identify the critical psychological state and related work outcome that might result from the job in the video.

Appendix D

Materials, Technology Needed, Set Up, and Other Considerations.

Material/Technology	Description
PowerPoint slides	Create slides with timers, JCM, and video clips
Video clips	Links provided; queued to play demonstrating each JCM dimension
8 × 11 1/2" Paper R&D	R&D—5 sheets of paper per student (approximately 25 sheets per team) (can be from recycle bin)
8 × 11 1/2" Paper competition	Competition—5 sheets of paper per student (approximately 25 sheets per team) (can be from recycle bin)
Tape	Blue painter's tape (recommended) Affix to the floor: A 2 × 2-ft.-size box shape on the floor for the landing zone; approximately 10 feet away, affix a take-off line
Markers/colored pens/pencils	For drawing logos on planes
Physical space	Classroom or other open space for flying the airplanes
Table 1: JCM	Print out to distribute to students (if desired)
Appendices H & J: Debrief and Reflection worksheets	Worksheets for reflection about the activity and their current jobs
Prizes	Small prizes (or extra credit) for the winners (if desired)

Setup

Landing Zone and Take-Off Line

In the classroom, affix to the floor the painter's tape in a 2' × 2' square on one end of the room to create the landing zone. Approximately 10 feet away from the landing zone, affix a line with the painter's tape to create a take-off line.

Debrief and Reflection Worksheet. Make enough copies of the debrief and reflection worksheets for all students or make one copy per team.

A Note Regarding Intrinsic vs. Extrinsic Motivation. To enhance intrinsic motivation, we suggest creating a backstory to explain what the planes will be used for (e.g., to carry much needed supplies to ____; or to rescue ____). If there is a nominal reward given to the winning team (e.g., extra credit, candy), we recommend not announcing this ahead of time to encourage intrinsic motivation. If offering prizes, ensure that you bring them to the classroom.

Appendix E

Student Experiential Activity Handout

Taking Flight With Job Design: An Experiential Activity

The goal: To land the most planes with the team logo in the landing zone.

Setup: The take-off line: where the pilots throw the team's planes

The landing zone: where the pilots aim to land teams' planes

Paper for research and development (R&D)

Paper for the competition

Team of 3–5 students

The Roles

Plane maker—Creates the paper airplanes

Artist—Draws the corporate logo

Pilot—Flies the planes

Note: A team can decide to have each member perform all roles (i.e., one person makes an entire plane, draws the design, and flies the plane), more than one role, or only one role each.

R&D—10 Minutes

- Determine the *one* most effective plane design
- Design *one* corporate, simple, unique logo that will be drawn on each of the team's planes (this is to identify which plane corresponds to each team)
- After determining the airplane design and logo, determine the team's division of labor—see roles above
- At the end of R&D time, submit the *one* paper airplane design with the corporate logo to be mass produced in the competition.

Competition—5 Minutes

- The team will use specific roles (plane makers, artists, and pilots) to mass produce the airplanes and fly them.
- Only airplanes with logos that land in the designated landing zone count toward the final score.
- Pilot(s) from each team will stand in a single-file line behind the take-off line, and only one pilot will quickly throw at a time; first come, first served.
- Once a plane has landed inside or outside the landing zone, it cannot be used, thrown again, or picked up; a new plane must be created and thrown.
- The airplanes must look like planes (i.e., no paper wads).

The winner: The team with the most planes in the landing zone (identified by their team logos).

Appendix F

Frequently Asked Questions.

Questions	Answers
Once a team has selected their prototype, are they required to remake all their planes the same design? How do you enforce that?	Yes, once they select their final design and logo from R&D, this is the style they mass produce for the competition. Typically, this is not an issue. Additionally, they usually choose a simplistic logo when they understand they will mass produce them. Explain that their plane style and logo must be consistent to determine who wins.
The instructions say that once a plane has landed, it cannot be reused or thrown again even if it is outside the landing zone. Do the teams wait to construct another plane?	No, teams do not wait to construct planes. This is designed to prevent them from reusing old planes, not to constrain their current production. They produce as many planes as fast as they can in 5 minutes. This is a continuous, concurrent process with all roles active during the competition. Making new planes ensures they must divide their labor, which might mitigate social loafing.
How do things usually play out? To what extent is the speed of making planes a factor?	The speed of making planes and the ability of the pilot are critical. Individuals must work well together. Teams have different strategies. Some try to spend the first few minutes making as many planes as possible and waiting to send pilots to the take-off line. Others try to send pilots immediately once planes are made. Some teams make fewer planes, and thus, they usually have less success.
Do pilots tend to throw their planes and then rush to get back in line? Can teams have multiple pilots in line at once?	Yes, pilots throw the plane and rush to the back of the line. The rule is that one pilot can throw one plane at a time (otherwise it's chaotic). Sometimes pilots will have several planes in their hands, but they can only throw one. They will throw, walk off, and look to see if it landed in the zone as they move to the back of the line. This can continue until they need to get more planes or until someone brings them more planes. Yes, teams may also have more than one pilot in line depending on their division of labor (e.g., if one person is making planes and drawing the logo and the other team members are pilots).
Are some plane "builds" better? Do teams win if they throw more planes? Is pilot skill important?	Yes, some paper airplanes are superior to others, and they will fly farther. Teams who throw more planes typically have a higher probability of success. Yes, some pilots are more skilled at throwing paper airplanes into the landing zone than others.
What if a plane is partly in and partly out of the landing zone? What happens if a team knocks another team (or their own) out of the landing zone?	What counts is where the airplane is at the end of competition time. Any plane with a logo that touches the landing zone lines or is in the landing zone counts as a point for the team. If a team's airplane is knocked out of the landing zone, sorry. It is a competition.
Can a team use only part of the paper for their plane design (i.e., cut the paper in half)?	We require students to use the entire sheet of paper to level the playing field across teams. This also may require additional supplies, such as scissors, and make the competition more complex if other teams want to add accoutrements to their planes. Remind them that they must mass produce these from the full sheet, so they will need to reduce the size of all the full sheets as part of the process if you allow it.

Appendix G

Debrief and Reflection of JCM Experiential Exercise [LO #3].

Questions	Facilitation guide
Core job dimensions	
To what extent did you observe <i>skill variety</i> in this activity?	Assembly line with designated roles of plane makers, pilots, and artists: low levels; each person was assigned a specific task. Complete assembler where every member assumed the role of plane maker, pilot, and artist: higher levels.
To what extent did you observe <i>task identity</i> in this activity?	Assembly line with designated roles of plane makers, pilots, and artists: low levels; complete assembler where every member assumed the role of plane maker, pilot, and artist: higher levels.
To what extent did you observe <i>task significance</i> in this activity?	Typically, students say low because making paper airplanes in class was not meaningful for anyone or anything. Ask what would happen if the incentive was a donation of \$100 to a charity of the team's choice if they won. Would that increase their task significance? They usually answer yes.
To what extent did you experience <i>autonomy</i> in this activity?	There are two types of autonomy: work scheduling and work methods. Students typically answer that they determined how they were making their planes, including who was building and who was flying; that is, work methods autonomy was high. However, work scheduling autonomy was low because it had to be completed within the time constraints.
To what extent did you have <i>feedback</i> in this activity?	They received feedback from plane quality (plane makers), ability to identify planes (artists), flight accuracy (pilots), and encouragement to create and fly their planes (instructor).
Critical psychological states	
To what extent did you experience meaningfulness (Do you believe your job was important?)	Answers may vary depending on the division of labor and their role. Pilots and plane makers may perceive that their tasks were very meaningful; artists may not.
To what extent did you have knowledge of results (from the work itself)?	Answers may vary; however, all roles should indicate that they had knowledge of results. Artists drew their logos; plane makers and pilots saw planes fly.
To what extent did you have responsibility for the work (could you take credit)?	Answers may vary but should be comparable to those above, unless there was social loafing (too many students on a team or a late arrival and not enough tasks).
Outcomes	
I felt <i>motivated</i> (I wanted to participate).	Answers vary; this may depend on whether one team has a superior design or an accurate pilot or other role.
How was your performance on this task?	Answers vary. They may discuss whether they were successful in their job.
How <i>satisfied</i> were you with the job?	Answers vary. Students may talk about their happiness or enjoyment regarding the novelty of the task.
Absenteeism—N/A (or would you attend if we did this activity again?)	Answers vary.
Turnover—N/A	Answers vary or N/A

Appendix H

Debrief and Reflection of JCM Experiential Exercise.

Questions	Student responses
Core job dimensions	
To what extent did you observe <i>skill variety</i> in this activity?	
To what extent did you observe <i>task identity</i> in this activity?	
To what extent did you observe <i>task significance</i> in this activity?	
To what extent did you experience <i>autonomy</i> in this activity?	
To what extent did you have <i>feedback</i> in this activity?	
Critical psychological states	
To what extent did you experience meaningfulness (Do you believe your job was important?)	
To what extent did you have knowledge of results (from the work itself)?	
To what extent did you have responsibility for the work (could you take credit)?	
Outcomes	
I felt <i>motivated</i> (I wanted to participate).	
How was your performance on this task?	
How <i>satisfied</i> were you with the job?	
Absenteeism—N/A (or would be attend if we did this activity again?)	
Turnover—N/A	

Appendix I

Debrief and Reflection of JCM Applied to My Current Job [LO #4 & #5].

Questions	Facilitation guide
Identify and describe the job characteristics of your job (or as a student if not employed).	Students may have various jobs or internships (e.g., server, retail cashier, mover, analyst). Ask probing questions to help them reflect the degree to which they have these job dimensions. For example, a server might perceive high levels of task significance (e.g., bringing food to hungry customers), low levels of autonomy (e.g., cannot determine how/when they perform their job), and high levels of feedback (e.g., consistent customer survey responses).
Identify and describe how the job characteristics of your job (or as a student if not employed) lead to the critical psychological states and/or the work outcomes?	Student answers will vary. Like above, students may have part-time jobs or internships. Ask probing questions to build on their previous answers to determine if they experienced meaningful work, knowledge of the results, or responsibility for the work. Then, ask them about work outcomes and their performance, internal work motivation, job satisfaction, absenteeism, and/or turnover.
Recommend ways in which your employer (or school/classes/ instructor) can increase the job dimensions and/or redesign your job tasks?	Example recommendations for employers may include giving employees the ability to seek out training and development programs for new skills, to learn the whole process and outcomes of their work, and the ability to engage with end users or customers. The answers will vary depending on the type of employment students have. Some example recommendations for an instructor may include using various opportunities to earn grades other than exams (e.g., daily grades or worksheets, team projects, etc.).
Compare and contrast your job's characteristics with those from the experiential exercise.	Students might mention that they do not make paper airplanes regularly and that it has low task significance, whereas their jobs may be paying for their tuition and livelihood. However, students with lower-level jobs may have less skill variety, and if they are not employed, they may mention that their coursework may require multiple skills depending on their course load. Other answers regarding autonomy and feedback will vary as an employee/student, but in the exercise, they may mention having much methods autonomy, but not scheduling autonomy. They will mention the feedback from the activity itself and the instructor.
Explain how you might increase your job characteristics in terms of tasks, relationships, and conception of the work? (Note: include this question if students have been exposed to job crafting or if you would like to use it as an introduction to job crafting).	Answers may vary. Individuals may say that they can add tasks that are interesting or exciting to their role. They may voluntarily create relationships with other organizational members outside their own group to help serve a client. They may also begin to think differently about the work they perform (e.g., as a food server, I am saving families everywhere because kids aren't themselves when they're hungry).
In what other ways might the job design be affected (e.g., artificial intelligence, pandemic, etc.)?	For example, with artificial intelligence, jobs that have routine tasks might be completed by artificial intelligence and allow humans to utilize higher-level skill variety and task significance while increasing their productivity. Additionally, individuals may have additional autonomy (work scheduling and work methods). Employees may better determine how and when to perform tasks when redundant tasks are reduced. It will be important to determine what tasks are most beneficial or feasible for AI to perform. Note: It may be helpful to refer to the AI at Amazon video. Answers may vary depending on issues students identify.

Appendix J

Debrief and Reflection of JCM Applied to My Current Job.

Questions	Student responses
Identify and describe the job characteristics of your job (or as a student if not employed).	
Identify and describe how the job characteristics of your job (or as a student if not employed) lead to the critical psychological states and/or the work outcomes?	
Recommend ways in which your employer (or school/ classes/instructor) can increase the job dimensions and/or redesign your job tasks?	
Compare and contrast your job's characteristics with those from the experiential exercise.	
Explain how you might increase your job characteristics in terms of tasks, relationships, and conception of the work? (Note: include this question if students have been exposed to job crafting or if you would like to use it as an introduction to job crafting).	
In what other ways might the job design be affected (e.g., artificial intelligence, pandemic, etc.)?	

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References

- Amazon. (2021, March 24). *Inside Amazon videos: Amazon's newest robots mean new jobs*. <https://www.youtube.com/watch?v=PCrZ9TXe7VM>
- Atencio, P. (Director). (2020, December 10). *Cooking shows can mess with your head—Key & Peele*. <https://www.youtube.com/watch?v=9wk4ApHloHM>
- Fried, Y., & Ferris, G. R. (1987). The validity of the job characteristics model: A review and meta-analysis. *Personnel Psychology, 40*, 287–322.
- Graen, G. B., Scandura, T. A., & Graen, M. R. (1986). A field experimental test of the moderating effects of growth need strength on productivity. *Journal of Applied Psychology, 71*, 484–491.
- Hackman, J. R. (1980). Work redesign and motivation. *Professional Psychology, 11*(3), 445–455.
- Hackman, J. R., & Oldham, G. R. (1975). Development of the job diagnostic survey. *Journal of Applied Psychology, 60*, 159–170. <https://doi.org/10.1037/h0076546>
- Hackman, J. R., & Oldham, G. R. (1976). Motivation through the design of work: Test of a theory. *Organizational Behavior and Human Performance, 16*, 250–279.
- Humphrey, S. E., Nahrgang, J. D., & Morgeson, F. P. (2007). Integrating motivational, social, and contextual work design features: A meta-analytic summary and theoretical extension of the work design literature. *Journal of Applied Psychology, 92*, 1332–1356. <https://doi.org/10.1037/0021-9010.92.5.1332>
- Ilgen, D. R., & Hollenbeck, J. R. (1992). The structure of work: Job design and roles. In M. Dunnette, & L. Hough (Eds.), *Handbook of industrial and organizational psychology* (pp. 165–207). Consulting Psychologists Press.
- Johns, G., Xie, J. L., & Fang, Y. (1992). Mediating and moderating effects in job design. *Journal of Management, 18*, 657–676.
- Kulik, C. T., Oldham, G. R., & Hackman, J. R. (1987). Work design as an approach to person-environment fit. *Journal of Vocational Behavior, 31*, 278–296.
- Leiter, M. P., & Maslach, C. (2023, March 17). To curb burnout, design jobs to better match employees' needs. *Harvard Business Review*. <https://hbr.org/2023/03/to-curb-burnout-design-jobs-to-better-match-employees-needs>
- Loher, B. T., Noe, R. A., Moeller, N. L., & Fitzgerald, M. P. (1985). A meta-analysis of the relation of job characteristics to job satisfaction. *Journal of Applied Psychology, 70*(2), 280–289.
- Madson, P. (Director). (2014, December 26). *Guitar build timelapse*. <https://www.youtube.com/watch?v=Q1G40Ms2yko>
- Morgeson, F. P., & Campion, M. A. (2003). Work design. In W. C. Borman, D. R. Ilgen, & R. J. Klimoski (Eds.), *Handbook of psychology: Industrial and organizational psychology* (Vol. 12, pp. 423–452). Hoboken, NJ: Wiley.
- Morgeson, F. P., & Humphrey, S. E. (2006). The Work Design Questionnaire (WDQ): developing and validating a comprehensive measure for assessing job design and the nature of work. *Journal of applied psychology, 91*(6), 1321–1339.
- Oldham, G. R., & Fried, Y. (2016). Job design research and theory: Past, present and future. *Organizational Behavior and Human Decision Processes, 136*, 20–35. <https://doi.org/10.1016/j.obhdp.2016.05.002>
- Oldham, G. R., & Hackman, J. R. (2010). Not what it was and not what it will be: The future of job design research. *Journal of Organizational Behavior, 31*, 463–479.

- Park, S. (2017). Motivating Raters through work design: Applying the job characteristics model to the performance appraisal context. *Cogent Psychology*, 4, 1–13.
- Parker, S. K., Morgeson, F. P., & Johns, G. (2017). One hundred years of work design research: Looking back and looking forward. *Journal of Applied Psychology*, 102(3), 403–420.
- Peet, D. (Director). (2020, January 8). *5 minute countdown: Baby Yoda*. https://www.youtube.com/watch?v=jwikl_-BZaU
- Parker, S. K., Wall, T. D., & Cordery, J. L. (2001). Future work design research and practice: Towards an elaborated model of work design. *Journal of Occupational and Organizational Psychology*, 74, 413–440.
- Renn, R. W., & Vandenberg, R. J. (1995). The critical psychological states: An underrepresented component in job characteristics model research. *Journal of Management*, 21, 279–303.
- Sleeth, D. (Director). (2013, August 24). *10 minute countdown radial timer with Beeps*. <https://www.youtube.com/watch?v=ap-JvvU0xV4>
- Steen, A. (Director). (2017, March 31). *U.S. Marine tries to teach reporter how to make a military-style bed*. <https://www.youtube.com/watch?v=uY6dWKpq1Sw>
- TSA (Director). (2016, May 31). *TSA on the Job: Transportation security officer*. <https://www.youtube.com/watch?v=NQoPmWIYytQ>
- Wrzesniewski, A., & Dutton, J. E. (2001). Crafting a job: Revisioning employees as active crafters of their work. *Academy of Management Review*, 26(2), 179–201. <https://doi.org/10.5465/amr.2001.4378011>