O*NET Level Scale Anchor Updates:
Abilities and Skills Domains
Final Report

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Background

The Occupational Information Network (O*NET) is a comprehensive system developed by the U.S. Department of Labor that provides information for over 900 occupations within the U.S. economy. The database is maintained by the National Center for O*NET Development ("the Center"), sponsored by the U.S. Department of Labor through a grant to the North Carolina Department of Commerce.

The Human Resources Research Organization (HumRRO) and the Center discussed the need to update several of the level scale anchors included within the stimulus materials used by trained occupational analysts to populate and/or update data for the O*NET Abilities and Skills domains (O*NET, 2021a). (For a description of the analyst ratings procedures see: O*NET Analyst Occupational Skills Ratings: Procedures Update (Fleisher & Tsacoumis, 2012a); O*NET Analyst Occupational Abilities Ratings: Procedures Update (Fleisher & Tsacoumis, 2012b); O*NET Analyst Occupational Skills Ratings: Procedures (Tsacoumis & Willison, 2010); O*NET Analyst Occupational Abilities Ratings: Procedures (Donsbach et al., 2003)). The level anchors are also incorporated within generic questionnaires available for use within organizational specific job analysis projects and research (see: O*NET Questionnaires; O*NET, 2021b). Level anchors are often viewed as an additional source of clarity for the Abilities and Skills descriptors. Hence, they are made available for use by application developers via the O*NET Database (see: O*NET 25.3 Database (O*NET, 2021c) and Level Scale Anchors (O*NET, 2021d)) and O*NET Web Services (see: Reference Manual: Database Services; O*NET, 2021e).

The level scales within the Abilities domain provide ratings on "enduring attributes of the individual that influence performance" related to an individual's current job (O*NET, 2021a). The level scales within the Skills domain provide ratings on the "developed capacities that facilitate learning or the more rapid acquisition of knowledge" (O*NET, 2021a). Each domain is divided into multiple *elements,* or specific descriptors (O*NET, 2021a). Ratings made on 7-point level scales indicate the degree, or point along a continuum, to which a particular descriptor is required or needed to perform a specific job. Each level scale is preceded by the following question: "What level of [a given ability/a particular skill] is needed to perform your current job?" Additionally, each level scale includes examples near the lower end, midpoint, and higher end of the scale to provide additional context for individuals who are completing the questionnaire. These examples are referred to as *level scale anchors* and the points they fall along the scale are called *anchor values.*

Level scale anchors have not been updated or modernized since they were originally developed in the mid-1990s (Peterson et al., 1995). The Center contracted with HumRRO to complete the following activities:

1. Review each level scale anchor within the Abilities and Skills domains for issues with obsolescence and to identify other necessary revisions to address length, language that could be difficult to understand, grammar or spelling, redundancy, bias and sensitivity.

2. Write updated level scale anchors for those flagged for any of the previously listed revisions.

3. Scale each new level scale anchor while also ensuring a match to the originally intended element.

This resulted in HumRRO reviewing 261 level scale anchors across two domains and updating 89. The purpose of the current report is to document the technical support provided by HumRRO to update the occupation level scale anchors for the Abilities and Skills domains.

Identifying the Level Scale Anchors to Update

HumRRO staff and the Center reviewed 156 and 105 level scale anchors (hereafter, referred to as "anchors" for brevity) within the Abilities and Skills domains, respectively, to identify potential issues with obsolescence and to identify other necessary revisions to address length, language that could be difficult to understand, grammar or spelling, redundancy, bias and sensitivity. After the initial review, the potential anchor updates were grouped into the following categories:

1. **Anchors flagged for replacement** – anchors requiring a complete reworking and/or modernization of the original anchor. HumRRO staff wrote replacement anchors to align with the same element and anchor value. Anchors requiring replacement were flagged for one or more of the following reasons:

    a. **Obsolescence: Technology** – references to specific technology or equipment that could be considered outdated (e.g., typewriter).

    b. **Obsolescence**: **Terminology** – specific words or phrases that could be considered outdated or no longer relevant (e.g., "throw a switch").

2. **Anchors flagged for revision** – anchors requiring (compared to anchors requiring replacement) smaller, more straightforward revisions to the original anchor that are less likely to alter the original construct. As with the replacement anchors, HumRRO staff wrote revised anchors to align with the same element and anchor value. Based on their necessary revisions, anchors were flagged for one or more of the following reasons:

    a. **Length** – exceeds the 70-character limit, excluding punctuation and spacing.

    b. **Simplification** – contains words or language that could be difficult to understand or may not be generalizable to the larger population.[1]

    c. **Grammar or spelling** – contains spelling or grammar that could be improved.

    d. **Redundancy** – includes repetitive or unnecessary words or language.

    e. **Bias and sensitivity** – contains roles, situations, or general language that, although considered neutral when the anchors where originally developed, could now be considered insensitive due to shifts in cultural norms.[2]

Once HumRRO staff completed initial reviews of the anchors for the issues noted above, the flagged anchors were reviewed again by the Center and a debriefing call was held to ensure all necessary updates were captured. Table 1 provides the frequency of flagged anchors for each of the categories. Although anchors could be flagged for more than one reason, in general, most anchors were only flagged once. By percentage, the anchors within the Skills domain required more updates compared to the anchors in the Abilities domain (42.86% versus 28.21%, respectively). For the Abilities domain, 17.30% and 14.74% of the anchors were flagged for replacement and revision, respectively. For the Skills domain, 12.38% and 41.90% of the anchors were flagged for replacement and revision, respectively.

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[1] This included several anchors related to the Military, nuclear, missile, or spacecraft activities that would not be as applicable to the larger population.

[2] For example, "Understand a speech presented by someone with a *strange* accent." In this situation, "strange" could be considered an insensitive way to describe someone's accent compared to "unfamiliar" or "foreign".

Table 1. Frequency of Flagged Level Scale Anchors by Update Category

Category	Abilities N (%)	Skills N (%)
Replacement		
Technology	24 (15.38)	9 (8.57)
Terminology	3 (1.92)	4 (3.81)
Total	**27 (17.30)**	**13 (12.38)**
Revised		
Length	4 (2.56)	16 (15.24)
Simplification	16 (10.26)	23 (21.90)
Grammar or spelling	0 (0.00)	3 (2.86)
Redundancy	0 (0.00)	1 (0.95)
Bias and sensitivity	3 (1.92)	1 (0.95)
Total	**23 (14.74)**	**44 (41.90)**
Number of Flags		
One	38 (24.36)	34 (32.38)
Two	6 (3.85)	10 (9.52)
Three	0 (0.00)	1 (0.95)
Flagged	44 (28.21)	45 (42.86)
Not flagged	112 (71.79)	60 (57.14)

Note. Abilities: 156 anchors, Skills: 105 anchors. Percentages are based on the number of anchors within each domain. Anchors could be flagged for more than one reason.

Drafting Updated Anchors

With input from the Center, HumRRO developed a set of detailed guidelines for drafting replacement and revised anchors, then used these guidelines to develop new anchor content. Prior to drafting the new anchors, two HumRRO analysts attended a one-hour training session covering the necessary reference information (discussions of domains, elements, and the level scale), descriptions and examples of each of the update categories, and instructions for the drafting process.

HumRRO analysts were instructed to draft two replacement anchors for each original anchor flagged for replacement, but only one revised anchor for each anchor flagged for revision. This distinction is tied to the goals of the scaling activity. Each replacement anchor would eventually be rated for element and anchor value match; thus, we needed a larger pool of replacement anchors to select from in the event that some draft anchors received poor match ratings and needed to be dropped from consideration. We discuss this process in greater detail in the following section. Additionally, given the replacement anchors were completely reworked and modernized versions of the original anchors, it was likely that the analysts who were independently drafting the new anchor content would produce replacement anchors that varied in content. Having the larger pool provided additional flexibility when it came to selecting final replacement anchors.

Guidelines for addressing the revisions for each update category were mostly straightforward. When drafting replacement anchors for obsolete technology or terminology, it was not always possible for the analysts to choose a similar type of technology or scenario. Instead, the analysts focused on drafting replacement anchors that aligned with the target element and anchor value. To address length, analysts were instructed to provide simplified alternatives to complex or "wordy" language to shorten the anchors to 70 or fewer characters. Similarly, for simplification, analysts revised anchors to ensure that words and the context could be easily understood by a larger audience. In situations where an analyst encountered a word with a simpler alternative, they were instructed to use the alternative. Electronic writing resources were provided to assist with revisions to anchors related to spelling and grammar. For issues with redundancy, the analysts were instructed to remove excessive or unnecessary words or phrases from the anchor. Finally, to address issues with bias and sensitivity, we suggested that the analysts research the most current or widely accepted language when drafting revised anchors.

After discussing guidelines for drafting anchors, we covered several important reminders. These included:

- Anchors could be flagged for more than one update category. If an anchor had multiple flags, the analysts were instructed to consider the guidelines for each applicable flag.

- If an anchor was flagged for replacement *and* revision, the analysts were instructed to draft two replacement anchors that addressed obsolescence and other necessary revisions (as opposed to only drafting a single revised anchor). In general, addressing obsolescence was given precedence over other identified issues.

- As previously discussed, the goal of the anchor revision/replacement process was to draft anchors that aligned with the original element and anchor value. Analysts were asked to flag draft anchors where they felt the anchor value may have shifted due to their revisions (e.g., complete makeovers, unavoidable changes). Flagged anchors were then reviewed and further revised by the project lead and technical advisor to maintain a comparable anchor value or to determine if rescaling was required.

- Finally, in situations where analysts did not feel confident drafting a revised or replacement anchor because they felt they lacked the needed knowledge and understanding of the element in question (e.g., elements that were highly technical or complex), they were asked to make note of these anchors for discussion as a team. It was expected that drafting replacement and revised anchors would require independent research. For the more technical anchors, we set aside time for periodic internal meetings to discuss our independent research related to these anchors.

The drafting process took place over the course of a month. Each analyst was provided with their own version of an Excel workbook containing information for the original anchors (element ID, element name, anchor description, and anchor value), indicators for whether the anchor was flagged for each update category, and notes from the earlier reviews conducted by HumRRO and the Center. After the analysts finished drafting the new anchor content, the replacement and revised anchors were combined into a single Excel workbook and provided to the Center for review. At that point, the Center was able to "veto" any of the new anchor content. They were also provided the opportunity to add any revised anchors with potential anchor value mismatches for inclusion in the scaling activity. This resulted in four revised anchors being included in the scaling activity. We discuss this process in the next section.

Scaling

The purpose of the scaling activity was to evaluate each of the replacement anchors and a smaller subset of the revised anchors based on their alignment with the original element and anchor value. Initially, we had planned to only scale the newly drafted replacement anchors because these anchors had undergone substantial updates that could have potentially shifted the new anchor away from the intended construct associated with the original anchor. We anticipated that the revised anchors would include mostly smaller revisions that would be less likely to alter the original element or anchor value. However, after HumRRO and the Center reviewed the complied list of replacement and revised anchors, four revised anchors were added to the list of anchors to include in the scaling activity. Both teams agreed the revisions were substantial enough to potentially result in a mismatch for the anchor value.

Over the course of approximately two weeks, independent ratings were completed by five HumRRO analysts. Of the five analysts, four have a master's degree and one has a doctoral degree in Industrial-Organizational Psychology with a range of 1-5 years in their current roles. Each of the analysts has experience either leading or supporting ongoing updates and revisions to various components of the O*NET occupational database. To remove the chance of bias or conflation with original revised item development, the five analysts did *not* include either of the individuals who drafted the new anchor content. Each analyst rated 27 replacement anchors and two revised anchors within the Abilities domain. They also completed ratings for 13 replacement anchors and two revised anchors within the Skills domain. The activity was preceded by a one-hour training session where the project lead and technical advisor assisted the analysts in making practice ratings for three of the replacement anchors and one revised anchor.

The analysts were instructed to review a description of each element and the associated level scale before making each rating. This information was provided in separate PDF documents for each domain. Analysts were also provided with their own Excel workbook to make independent ratings. The workbook included the element ID, element name, original anchor value, and original anchor description to help make their ratings. The replacement anchors were presented in four columns (two replacement anchors drafted by two independent analysts), each followed by three additional columns that provided a drop-down list for analysts to make the following ratings:

1. **Element match**: Analysts selected "Y" to indicate that the updated anchor aligned with the original element or "N" to indicate that the updated anchor did not align with the original element.

2. **Anchor value match**: Analysts selected "Y" to indicate that the updated anchor aligned with the original anchor value or "N" to indicate that the updated anchor did not align with the original anchor value.

3. **Adjusted anchor value**: *If* an analyst indicated that the updated anchor *did not* align with the original anchor value (i.e., if they selected "N" in the previous column), then they were instructed to select the appropriate anchor value. (This is generally expected to be either one unit above or below the original anchor value given the intent to draft all anchors to align with the original anchor value). *If* an analyst indicated that the updated anchor *did* align with the original anchor value (i.e., if they selected "Y" in the previous column), then this column was to be left blank.

The revised anchors were presented in two columns (one revised anchor drafted by two independent analysts) on a separate sheet within the same workbook and followed the same guidelines and format. Each sheet contained a separate column for notes where the analysts could list any questions or concerns that they had about a particular anchor. They were also able to list which of the anchors they felt provided the strongest replacements or revisions to the original anchors.

After the analysts finished making their ratings, a consensus meeting was held to discuss any discrepancies. The ratings were compiled into a single Excel workbook and shared with each of the analysts. Only the original anchors that did not have at least one replacement or revised anchor with 100 percent agreement (i.e., all five analysts indicated a match) for both element and anchor value match were discussed. This was the case for seven replacement anchors and one revised anchor within the Abilities domain and three replacement anchors within the Skills domain. For each of these cases, we began by discussing the new anchor with the highest ratings (closest to 100 percent agreement) for both element and anchor value match. In a few cases, more than one of the new anchors were tied for the highest ratings. When this occurred, each anchor was discussed as a potential alternative. Table 2 provides an overview of the frequency of the anchors by highest element and anchor value match ratings. Overall, across both domains, most original anchors had at least one replacement anchor that received 100 percent agreement from the analysts (Abilities: 74.07%, Skills: 76.92%). Ratings were also favorable for the original anchors marked for revision with only one revised anchor not receiving 100 percent rater agreement.

Table 2. Frequency of Level Scale Anchors by Highest Match Ratings

Highest Rating (Element Match/Anchor Value Match)	Abilities N (%)	Skills N (%)
Replacement		
5/5	20 (74.07)	10 (76.92)
5/4	3 (11.11)	2 (15.38)
5/3	3 (11.11)	1 (7.69)
4/4	1 (3.70)	--
Revised		
5/5	1 (50.00)	2 (100.00)
5/4	1 (50.00)	--

Note. Abilities: 27 replacement anchors and 2 revised anchors; Skills: 13 replacement and 2 revised anchors. Percentages are based on the number of anchors within each update category for each domain. Five analysts rated each new anchor separately on element match and anchor value match.

For all anchor value mismatches, analysts indicated in their independent ratings that the adjusted anchor value should be one unit lower than the original anchor value. Throughout our discussion, it became apparent that many of the anchor value mismatch ratings were rooted in comparison to the original anchor content. Several analysts mentioned lowering the anchor value for the new anchor by one unit when the original anchor referenced Military, nuclear, missile, or spacecraft activities because these types of activities appeared more "complex" than the newer anchor content. As a result, we shifted our discussions away from comparison to the original anchors and, instead, focused on comparisons to the anchors positioned at the extreme ends of the corresponding level scale or to the anchor near the scale midpoint. In the end,

analysts were able to reach 100 percent agreement on all but two of the replacement anchors within the Abilities domain. For these two anchors, the new potential anchor value was marked as one unit lower than the original anchor value (a decrease in anchor value from 7 to 6 and 6 to 5).

Finalizing the Updated Anchors

Once the ratings from the scaling activity were finalized, a single replacement or revised anchor was selected for each flagged original anchor. Original anchors with more than one new anchor with 100 percent agreement were replaced by the anchor that was the most simple and modern alternative and that best aligned with the intended element and anchor value as determined by the project lead and technical advisor. All other anchors were replaced by the anchor agreed upon by the analysts during the consensus meeting.

The Center completed a thorough review of each new anchor and then met with HumRRO to discuss feedback. As a result, we reached consensus on the two replacement anchors within the Abilities domain without 100 percent agreement from HumRRO's analysts (described at the end of the 'Scaling' section) and each anchor remained at the originally intended anchor value. For the other flagged anchors, minor edits were made to ensure the intended element was evident or the anchor was replaced with an alternative anchor that had also received 100 percent agreement. The revisions made at this stage were not significant enough to warrant collecting updated scaling ratings from HumRRO's analysts. After all the revisions were addressed, a final list of anchors that were best for inclusion for the Abilities and Skills domains was provided to the Center in a format suitable for publication. For a comparison of new versus original descriptions for anchors that were updated, see Appendix A (Abilities) and Appendix B (Skills).

Summary

Through collaboration with the Center, HumRRO updated 44 level scale anchors within the Abilities domain and 45 level scale anchors within the Skills domain (28% and 43% of all level scale anchors within each domain, respectively). Many of these updates required minor revisions to address issues such as excessive length, language that was difficult to understand or not generalizable to the larger population of occupations, spelling or grammar, words that were repetitive or unnecessary, and potential issues with bias and sensitivity. Other anchors required a complete reworking and/or modernization to the original level scale anchor to address issues with obsolescence related to technology and/or terminology. The newly developed level scale anchors provide modernized and simplified alternatives to the original anchors.

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Appendix A: New Versus Original Anchor Descriptions: Abilities Domain

Table A1. Abilities Domain: Original and Final Level Scale Anchors

Element	Anchor Value	Original Anchor Description	Final Anchor Description
Category Flexibility	2	Sort nails in a toolbox on the basis of length	Sort paintbrushes based on length
Category Flexibility	6	Classify man-made fibers in terms of their strength, cost, flexibility, melting points, etc.	Classify man-made fibers in terms of their characteristics, like strength or cost
Extent Flexibility	2	Reach for a microphone in a patrol car	Reach to adjust the radio in a car
Far Vision	4	Focus a slide projector	Read the slides on a presentation from across a room
Finger Dexterity	4	Attach small knobs to stereo equipment on an assembly line	Attach small dials to audio equipment on an assembly line
Flexibility of Closure	2	Tune in a radio in a noisy truck	Detect that your phone is ringing while at a concert
Flexibility of Closure	4	Look for a golf ball in the rough	Look for a golf ball in tall grass
Flexibility of Closure	6	Identify camouflaged tanks from a high-speed airplane	Identify camouflaged animals from a moving vehicle while on a safari
Fluency of Ideas	6	Name all the possible strategies for a military battle	Identify as many strategies as possible for a company acquisition and merger
Hearing Sensitivity	2	Notice when a watch alarm goes off	Notice a doorbell ringing
Information Ordering	6	Assemble a nuclear warhead	Assemble a wind turbine
Mathematical Reasoning	1	Determine how much 10 oranges will cost when they are priced at 2 for 20 cents	Determine how much 20 oranges will cost when they are priced at 5 for 4 dollars
Memorization	6	Recite the Gettysburg Address after studying it for 15 minutes	Recite a 300-word speech after studying it for 15 minutes
Near Vision	2	Read dials on the dashboard of a car	Read indicators on the dashboard of a car
Night Vision	4	Take notes during a slide presentation	Read a book in a dimly lit setting
Number Facility	3	Balance a checkbook	Calculate a discounted price
Oral Expression	2	Cancel newspaper delivery by phone	Place an order at a restaurant drive-thru

Element	Anchor Value	Original Anchor Description	Final Anchor Description
Perceptual Speed	4	Read five temperature gauges in 10 seconds to make sure each temperature is within safe limits	Read five pressure indicators in 10 seconds to make sure each is within safe limits
Perceptual Speed	6	Inspect electrical parts for defects as they flow by on a fast-moving assembly line	Inspect electrical parts for defects as they pass on a fast-moving assembly line
Peripheral Vision	2	Keep in step while marching in a military formation	Keep in step while marching in a band
Peripheral Vision	6	Distinguish friendly from enemy planes during air combat	Distinguish a teammate from a competitor passing by in a car race
Problem Sensitivity	4	Recognize from the mood of prisoners that a prison riot is likely to occur	Notice from a subtle difference in a client's mood that something is bothering them
Reaction Time	4	Throw a switch when a red warning light goes off	Press a button to stop operation when a warning light goes off
Reaction Time	6	Hit the brake when a pedestrian steps in front of the car	Hit the brake when a pedestrian steps in front of your car
Response Orientation	2	When the doorbell and telephone ring at the same time, quickly select which to answer first	When a doorbell and phone ring at the same time, quickly select which to answer first
Response Orientation	4	Hit either the automobile brake or gas pedal in a skid situation	Use either the brake or gas pedal when your vehicle is skidding
Response Orientation	7	In an out of control spacecraft, react quickly to restore control	In an out-of-control commercial aircraft, react quickly to restore control
Selective Attention	4	Monitor security TV screens for intruders throughout the night shift	Watch security monitors for intruders throughout the night shift
Selective Attention	6	Study a technical manual in a noisy boiler room	Study a technical manual while listening to loud construction sounds
Sound Localization	2	Listen to a stereo to determine which speaker is working	Listen to a sound system to determine which speaker is working
Sound Localization	4	Find a ringing telephone in an unfamiliar apartment	Find a ringing phone in an unfamiliar apartment
Spatial Orientation	6	Navigate an ocean voyage using only the positions of the sun and stars	Navigate an ocean voyage using a compass and landmarks

Element	Anchor Value	Original Anchor Description	Final Anchor Description
Speech Clarity	4	Make announcements over the loudspeaker at a sports event	Make stadium-wide announcements during a sporting event
Speech Recognition	4	Identify a former customer's voice over the telephone	Identify a former customer's voice over the phone
Speech Recognition	6	Understand a speech presented by someone with a strange accent	Understand a speech presented by someone with an unfamiliar accent
Speed of Closure	4	Make sense out of strange handwriting	Make sense of messy handwriting
Time Sharing	2	Listen to music while filing papers	Listen to music while entering numbers into a spreadsheet
Time Sharing	6	Monitor radar and radio transmissions to keep track of aircraft during periods of heavy traffic	Monitor radar and radio transmissions to keep track of heavy aircraft traffic
Visual Color Discrimination	6	Paint a color portrait of a live person	Paint a color portrait of a person
Visualization	2	Imagine how to put paper in a typewriter so that the letterhead comes out on top	Imagine how to place paper in a printer so that the letterhead comes out on top
Visualization	6	Anticipate opponent's as well as your own future moves in a chess game	Anticipate future moves in a chess game
Wrist-Finger Speed	2	Use a manual pencil sharpener	Use a screwdriver to twist in a screw
Wrist-Finger Speed	6	Type a document at 90 words per minute	Type 90 words per minute
Written Comprehension	6	Understand an instruction book on repairing missile guidance systems	Understand an instruction book on repairing Artificial Intelligence systems

Appendix B: New Versus Original Anchor Descriptions: Skills Domain

Table B1. Skills Domain: Original and Final Level Scale Anchors

Element	Anchor Value	Original Anchor Description	Final Anchor Description
Active Learning	2	Think about the implications of a newspaper article for job opportunities	Think about the implications of a news article for job opportunities
Active Listening	6	Preside as judge in a complex legal disagreement	Serve as a judge in a complex legal disagreement
Complex Problem Solving	6	Develop and implement a plan to provide emergency relief for a major metropolitan area	Develop a plan to provide emergency relief for a major metropolitan area
Coordination	6	Work as director of a consulting project calling for interaction with multiple subcontractors	Direct a project requiring coordination between multiple subcontractors
Equipment Maintenance	2	Add oil to an engine as indicated by a gauge or warning light	Add oil to an engine as indicated by a warning light
Equipment Maintenance	6	Conduct maintenance checks on an experimental aircraft	Conduct maintenance checks on an aircraft
Equipment Selection	2	Select a screwdriver to use in adjusting a vehicle's carburetor	Select a tool to adjust a loose part on a bicycle
Equipment Selection	4	Choose a software application to use to complete a work assignment	Choose a software application to complete a work assignment
Installation	4	Install new switches for a telephone exchange	Install a speaker system in a car
Installation	6	Install a "one of a kind" process production molding machine	Install a custom-made production machine for a new product
Instructing	2	Instruct a new employee in the use of a time clock	Instruct a new employee in the use of a timekeeping system
Instructing	6	Demonstrate surgical procedure to interns in a teaching hospital	Demonstrate a surgical procedure to interns in a teaching hospital
Learning Strategies	4	Identify an alternative approach that might help trainees who are having difficulties	Identify an alternative approach to help trainees who are having difficulties
Management of Financial Resources	2	Take money from petty cash to buy office supplies and record the amount of the expenditure	Use available funds to buy office supplies and record the amount of the purchase

Element	Anchor Value	Original Anchor Description	Final Anchor Description
Management of Financial Resources	6	Develop and approve yearly budgets for a large corporation and obtain financing as necessary	Develop, monitor, and adjust annual budgets for a large corporation
Management of Material Resources	2	Rent a meeting room for a management meeting	Reserve a room for a management meeting
Management of Material Resources	6	Determine the computer system needs of a large corporation and monitor use of the equipment	Determine and monitor the computer system needs of a large corporation
Management of Personnel Resources	2	Encourage a coworker who is having difficulty finishing a piece of work	Encourage a coworker who is having difficulty finishing a project
Management of Personnel Resources	6	Plan, implement, and manage recruitment, training, and incentive programs for a high performance company	Manage recruitment and training programs for a high-performance company
Monitoring	4	Monitor a meeting's progress and revise the agenda to ensure that important topics are discussed	Monitor a meeting and revise the agenda to ensure important topics are discussed
Monitoring	6	Review corporate productivity and develop a plan to increase productivity	Review corporate productivity and develop a plan to increase it
Negotiation	2	Present justification to a manager for altering work schedule	Present justification to a manager for altering a work schedule
Operation and Control	2	Adjust the settings on a copy machine to make reduced size photocopies	Navigate the settings on an office printer to print on both sides of the paper
Operation and Control	4	Adjust the speed of assembly line equipment based on the type of product being assembled	Adjust the speed of assembly line equipment based on the product being assembled
Operation Monitoring	6	Monitor and integrate control feedback in a petrochemical processing facility to maintain production flow	Monitor feedback control in a processing facility to maintain production flow
Operations Analysis	2	Select a photocopy machine for an office	Select a printer for an office
Persuasion	4	Convince a supervisor to purchase a new copy machine	Convince a supervisor to purchase new office equipment
Programming	2	Write a program in BASIC to sort objects in a database	Write a program to sort objects in a database
Programming	6	Write expert system programs to analyze ground radar geological data for probable existence of mineral deposits	Write programs to analyze geological data for existence of mineral deposits

Element	Anchor Value	Original Anchor Description	Final Anchor Description
Quality Control Analysis	2	Inspect a draft memorandum for clerical errors	Inspect a draft email for errors (e.g., grammar, punctuation)
Quality Control Analysis	4	Measure new part requisitions for tolerance to specifications	Assess new parts for precision and accuracy to specifications
Reading Comprehension	4	Read a memo from management describing new personnel policies	Understand an email from management describing new personnel policies
Science	4	Conduct product tests to ensure safety standards are met, following written instructions	Conduct product tests to ensure safety standards are met
Science	6	Conduct analyses of aerodynamic systems to determine the practicality of an aircraft design	Analyze aerodynamic systems to determine the practicality of a design
Service Orientation	2	Ask customers if they would like cups of coffee	Ask customers if they would like a cup of coffee
Service Orientation	4	Make flight reservations for customers, using airline reservation system	Make flight reservations for customers using an online booking site
Social Perceptiveness	6	Counsel depressive patients during a crisis period	Counsel patients who are depressed during a crisis period
Systems Analysis	4	Determine how the introduction of a new piece of equipment will affect production rates	Determine how a new piece of equipment will affect production rates
Systems Analysis	6	Identify how changes in tax laws are likely to affect preferred sites for manufacturing operations in different industries	Identify how changes in tax laws affect locations of manufacturing operations
Systems Evaluation	2	Determine why a co-worker has been overly optimistic about how long it would take to complete a task	Determine why estimates for the time to complete a task are overly optimistic
Systems Evaluation	4	Identify the major reasons why a client might be unhappy with a product	Identify the reasons why a client might be unhappy with a product
Systems Evaluation	6	Evaluate the long-term performance problem of a new computer system	Evaluate the long-term performance of a new computer system
Troubleshooting	6	Direct the debugging of control code for a new operating system	Direct the debugging of code for a new operating system
Writing	2	Take a telephone message	Write down a guest's order at a restaurant
Writing	4	Write a memo to staff outlining new directives	Write an email to staff outlining new directives