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Methodology for Translating Enlisted Veterans' Nontechnical Skills into Civilian Employers' Terms

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Preface

Military veterans have a great deal to offer to potential civilian employers, including valuable nontechnical skills, such as leadership, decisionmaking, persistence, and attention to detail. However, for both veterans and civilian employers, understanding which skills veterans have received in formal training and education courses and on the job is challenging because military and civilian workplace cultures and languages can seem radically different from one another.

To help address this issue, RAND was asked by the Office of the Under Secretary of Defense for Personnel and Readiness to develop prototype materials that could be used by veterans and employers to explain and understand the skills veterans can potentially bring to the civilian workplace. In a two-phase study, we developed prototype toolkits that veterans, especially those in enlisted combat arms occupations, can use to translate and describe their skills to potential civilian employers and that civilian employers can use to understand veteran job applicants' skills. In these tools, we focus on essential nontechnical skills (such as leadership, critical thinking, and oral communication) addressed through selected formal military training and education courses and through on-the-job experiences. The purpose of this report is to document the methodology used to create the current pair of prototype toolkits, one of which is targeted at employers and the other at veterans:

- *What Veterans Bring to Civilian Workplaces: A Prototype Toolkit for Helping Private-Sector Employers Understand the Nontechnical Skills Developed in the Military*, by Chaitra M. Hardison, Tracy C. McCausland, Michael G. Shanley, Anna Rosefsky Saavedra, Angela Clague, James C. Crowley, Jaclyn Martin, Jonathan P. Wong, and Paul S. Steinberg, Santa Monica, Calif.: RAND Corporation, TL-160-1-OSD, 2017, available at www.rand.org/t/TL160-1
- *What Veterans Bring to Civilian Workplaces: A Prototype Toolkit for Helping Veterans Communicate to Private-Sector Employers About the Nontechnical Skills Developed in the Military*, by Tracy C. McCausland, Michael G. Shanley, Chaitra M. Hardison, Anna Rosefsky Saavedra, James C. Crowley, Jonathan P. Wong, and Paul S. Steinberg, Santa Monica, Calif.: RAND Corporation, TL-160/1-1-OSD, 2017, available at www.rand.org/t/TL160z1-1.

These prototype toolkits should be valuable to veterans and civilian employers, and this report should be of interest to individuals who wish to learn more about how the toolkit materials were created. The report should also be of interest to U.S. Department of Defense and U.S. Department of Veterans Affairs personnel who are committed to increasing veterans' gainful civilian employment. Lastly, the report should be useful to members of the services interested

in applying this methodology to additional career fields or updating the combat arms materials as major changes in training and education or job experiences occur in those career fields.

This research was sponsored by the Transition to Veterans Program Office of the Office of the Under Secretary of Defense for Personnel and Readiness. It was conducted within the Forces and Resources Policy Center of the RAND National Defense Research Institute, a federally funded research and development center sponsored by the Office of the Secretary of Defense, the Joint Staff, the Unified Combatant Commands, the Navy, the U.S. Marine Corps, the defense agencies, and the defense Intelligence Community. For more information on the RAND Forces and Resources Policy Center, see www.rand.org/nsrd/ndri/centers/frp or contact the director (contact information is provided on the web page).

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Summary

A key challenge for some transitioning veterans who are returning to civilian life is gaining a foothold in the civilian job market. Veterans have many skills that employers want, but it can be difficult for veterans to articulate them in language that employers understand because the culture and terminology of their respective work environments are so different.

The aim of this study, commissioned by the Transition to Veterans Program Office of the Office of the Under Secretary of Defense for Personnel and Readiness, was to develop prototype toolkits that can help veterans of enlisted combat arms occupations translate and describe their skills in nonmilitary terms that potential civilian employers will understand. These toolkits focus on only a subset of the many military occupational specialties, but the methodology used to develop the toolkits—the topic of this report—could be used to develop similar materials for other military specialties. The full set of prototype materials we produced has been published in two versions, one targeted at employers and the other targeted at veterans:

- *What Veterans Bring to Civilian Workplaces: A Prototype Toolkit for Helping Private-Sector Employers Understand the Nontechnical Skills Developed in the Military*, by Chaitra M. Hardison, Tracy C. McCausland, Michael G. Shanley, Anna Rosefsky Saavedra, Angela Clague, James C. Crowley, Jaclyn Martin, Jonathan P. Wong, and Paul S. Steinberg, Santa Monica, Calif.: RAND Corporation, TL-160-1-OSD, 2017, available at www.rand.org/t/TL160-1
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Approach

This report documents the systematic process we followed to translate the military parlance for veterans' nontechnical skills into more widely understood terminology. In this pilot study, we focused on enlisted Soldiers and Marines from selected combat arms branches of the Army and the Marine Corps, because they represent a large group of transitioning veterans and because this group tends to find transitioning particularly difficult. The materials we produced—intended to serve as a proof of concept—will be made available to veterans, career counselors, and civilian employers.

We developed the prototype materials in a two-phase effort. In Phase I, we developed a list of essential workplace skills, then created materials that show how skills from that list are developed through *formal military training and education courses*. In Phase II, we added to the list of essential workplace skills and expanded the materials to include vignettes illustrating how Soldiers and Marines develop skills from the list through *on-the-job experience*.

Developing a List of Essential Workplace Skills

During Phase I, we compiled a list of nontechnical skills that describe aspects of workplace performance that civilian employers want in employees and that enlisted military personnel might have attained through military training, education, and on-the-job experience. To do so, we consulted three sources: existing lists of nontechnical skills believed to be possessed by veterans, research literature defining the nontechnical skills that employers tend to value in all employees, and additional skills identified during the process of summarizing the training and education courses and suggested in feedback from reviewers of our work.

Using the literature on skills that civilian employers value in veterans and the vast cross-disciplinary literature on skills that employers value in *all* employees, we developed a starting list of the nontechnical competencies or skills that civilian employers seek and that veterans might conceivably have the opportunity to develop during military courses and through on-the-job experience. To promote understanding, we compiled definitions for each skill (which can be found in the main body of this report). We used this starting list of skills and their definitions for Phase I. At the beginning of the Phase II research, we added three skills to the list based on feedback from reviewers and subject-matter experts (SMEs). The resulting final list of skills is as follows:

- adaptability (added during Phase II)
- behaving ethically (added during Phase II)
- being dependable and reliable
- conscientiousness and attention to detail
- continuous learning
- critical thinking
- decisionmaking/decisiveness
- handling work stress
- interpersonal skills
- leading, motivating, and inspiring others to accomplish organizational goals
- managing/supervising the work of others
- operating safely
- oral communication
- persistence
- project planning
- situational awareness (added during Phase II)
- teamwork and team-building
- training others
- written communication.

Phase I: Capturing Formal Military Training and Education Experiences

After developing the initial skills list, we continued with Phase I, which focused exclusively on capturing *formal training and education courses* related to those skills. This effort involved two interrelated tasks:

1. Develop and implement a methodology to document the skills developed in military courses.
2. Use the results of Task 1 to produce prototype materials geared toward veterans, civilian employers, and career counselors.

The ultimate goal for our methodology was to develop a systematic process for (1) identifying the skills that were being targeted in the courses and (2) providing concrete descriptions explaining how each skill was being applied and practiced during the course. Our process also had to be efficient, reliable, and credible enough such that RAND could ultimately turn over the methodology to the military services for expansion once we completed the pilot study.

In developing an efficient, reliable, and credible process, we explored multiple approaches. For example, we started with the intent of describing the *level* of skill targeted in each course by reviewing and systematically coding the information in existing course materials; however, our attempts to define skill levels this way were unsuccessful. The method we ultimately arrived at instead, which we call the "Top Skills" methodology, is an integrated one that draws on a variety of sources.

We started by reviewing a course's program of instruction, lesson plans, and other available materials to achieve a good understanding of the course. We then arranged in-person meetings with course instructors, developers, and other training and education SMEs. We provided them with our list and definitions of nontechnical skills and then asked them to choose the top five to seven skills and the bottom five skills the course develops. We then conducted moderated discussions with the SMEs, asking them to explain why they chose the top skills they did and how the course developed the selected skill, and to provide us with substantiating examples to share. We ultimately used the illustrative examples the SMEs provided as the basis for the descriptive examples in the prototype toolkits.

After meeting with the SMEs, we synthesized the information they provided. In most cases, there was consensus among SMEs regarding which skills were addressed most in the course (which we refer to as the *top skills*); however, researcher judgment was needed to determine which examples best illustrated how they were addressed. Once we determined the top skills and wrote a course overview, we shared those outputs with selected SMEs from the original interview sessions to validate the contents. When necessary, we made modifications to the overviews based on the feedback we received.

We describe both the final recommended methodology and our iterative approach to developing it in the main body of the report.

Phase II: Capturing On-the-Job Experiences

In Phase II of the study, we focused exclusively on capturing on-the-job experiences, as opposed to formal training and education courses, to produce prototype materials similar to those produced in Phase I. Like the first phase, Phase II involved two interrelated tasks:

1. Develop a methodology to document the skills developed on the job.

2. Use the results of Tasks 1 to produce prototype materials geared toward veterans, civilian employers, and career counselors.

Elements of our Phase II methodology built on the successes and lessons learned during the Phase I effort. The Phase II approach employed a mixed-methods design, relying on both detailed narratives (focus groups and interviews) and quantifiable assessments (questionnaires and surveys).

To identify on-the-job experiences, we conducted three main activities.

First, we administered a questionnaire and collected stories illustrating nontechnical skills by conducting in-person focus groups and phone interviews with personnel from four military occupational specialties (MOSs) within the combat arms (two in the Marine Corps and two in the Army). More than 200 Soldiers and Marines contributed to this part of the research effort (206 were from the four combat arms occupational specialties we targeted, and an additional 78 were from closely related specialties in the combat arms). We then held follow-up interviews with about 40 of these individuals by phone.

Second, we translated and refined verbal stories into written ones that could be easily understood by both civilians and military personnel. We then solicited feedback from SME panels composed of senior enlisted personnel from the four targeted MOSs to ensure the stories' authenticity and from two other non–combat arms MOSs to explore the stories' generalizability.

Third, we collected survey data from additional job incumbents and combined these data with the focus group questionnaire results to explore the criticality of each skill.

The Resulting Prototype Materials

The end goal for both phases was to create a pair of prototype toolkits, one for veterans and career counselors and one for employers.

The training and education materials developed in Phase I, which focused on skills gained from formal military training and education coursework, included the following:

- *Course summary tables*. We created a set of matrixes providing an overview of the skills most addressed in each course (one for Army courses and one for Marine Corps courses included in the pilot). These tables play a role akin to a table of contents, providing veterans and employers with a quick and high-level understanding of which skills are emphasized. The tables provide the highest-level information.
- *Course overviews*. For each set of course summary tables, we also included a set of course overviews, describing in layman-friendly terms how each course develops those key skills. The course overviews provide more depth to back up the tables.

In Phase II, we produced a similar set of materials that capture skills gained through on-the-job experience: *on-the-job experience summary tables* (one for Army on-the-job experiences and one for Marine Corps experiences) that identify the skills attained through on-the-job experiences, and *on-the-job experience vignettes* that describe how each skill or skill cluster is attained through on-the-job experience. Collectively, these materials can help employers understand these skill-building experiences.

All the materials are aimed at making the military world accessible and understandable to civilian employers, and at helping veterans explain to civilian employers in nonmilitary terms the skills in which they may have formal military training and education, on-the-job experience, or both. For example, the following on-the-job experience vignette is an example of how the skill "adaptability and handling work stress" might be developed:

> While in a small arms conflict with the enemy [e.g., fighting with small weapons, such as machine guns], I had to calmly reposition key weapon systems in order to have better fields of fire [area that can be reached by weapon fire]. At the same time, I had to monitor radio traffic for enemy positions and maneuvering. Generally, while performing in combat, and even under time pressure, I would deal with the stress by breaking down each task into small parts, and performing each task one at a time. I analyzed the conditions [enemy behavior], determined if I needed to change positions of the weapon systems, formed a plan, and then executed the plan. In this case, I was able to maintain composure and execute the tasks assigned to me [overcome enemy forces] without any casualties [injuries or deaths].

The prototype materials begin with letters to the respective civilian employer and veteran audiences, and we also provide instructions on how to use the materials and context for users through a number of questions and answers about the materials.

Again, the resulting final prototype materials are as follows:

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- *What Veterans Bring to Civilian Workplaces: A Prototype Toolkit for Helping Veterans Communicate to Private-Sector Employers About the Nontechnical Skills Developed in the Military*, by Tracy C. McCausland, Michael G. Shanley, Chaitra M. Hardison, Anna Rosefsky Saavedra, James C. Crowley, Jonathan P. Wong, and Paul S. Steinberg, Santa Monica, Calif.: RAND Corporation, TL-160/1-1-OSD, 2017, available at www.rand.org/t/TL160z1-1.

Methodological Insights

We developed a number of methodological insights as a result of our pilot study. These lessons learned, briefly summarized below, helped inform our recommendations for how the method could be improved upon and how it could be potentially applied to develop similar materials for other MOSs, both within and across the services.

Insights from Our Training Course Study (Phase I)

- Gaining course instructors' (and other SMEs') perspective is critical.
- Eliciting relevant information requires skilled facilitators.

Insights from Our On-the-Job Experiences Study (Phase II)

- SMEs and job incumbents need help from skilled facilitators to produce and identify relevant stories.
- Job incumbents are also not experienced at writing vignettes and thus struggle to produce concise written outlines of their stories.
- Participants conveyed both general military stories and MOS-specific stories, and a balance of both types is needed.
- For some groups of skills, stories were highly similar; therefore, collapsing the skills into a shorter list of nontechnical skills may make sense.
- Combat-related stories have a shelf life, and therefore the toolkits may need to be updated over time.
- SMEs had difficulty pinpointing a single pay grade level for a story, suggesting that a simpler classification may be needed.
- Likert ratings in the surveys provided additional insights about skill criticality beyond those obtained when participants were asked to select the top five most important and most frequently used skills.

Crosscutting Insights

- Participants found quantifying skill level to be too difficult and complex in both phases of the research.
- The research design takes time to implement and a nontrivial amount of resources.
- Our research confirmed that military personnel generally have difficulty describing the skills they developed during their military service in terms of important civilian job-related skills.

Limitations of This Research

There are a number of limitations to our research effort to develop prototype toolkits that are important to note. Many of these limitations are related to budget and time constraints for the research. For example, we had to focus on only a subset of occupations, and our sample sizes of instructors, job incumbents, and SMEs were limited to only those that could be addressed within the timeline of the project. Other limitations stemmed from the difficulty of capturing the inherent variation in military training and education courses and job experiences across individuals and over time. For example, because military courses and jobs change over time, the prototype toolkits we produced will need to be updated eventually. These and other limitations are discussed more in the main body of the report.

However, perhaps the two most important limitations to note are from the point of view of the utility of the toolkit materials. First, as noted above, the toolkits focus only on the combat arms occupations, and we explored only a subset of MOSs within the combat arms occupations. Consequently, the resulting toolkits do not include examples of the other types of training, education, and job experiences that might exist outside of the combat arms occupations or outside the specific MOSs we explored. Nevertheless, we believe that this work may

still be applicable to veterans from other MOSs and other services, as an example of the types of information that might be useful to employers.

Second, we were not able to take the important step of implementing a structured process for having the prototype toolkits actually tried by their intended users (employers, veterans, and career counselors) and getting their feedback on how to change or improve them. We would therefore recommend that the vetting process for the prototype toolkits continue and that future iterations of this methodology also include provisions for extended vetting of any new information in a similar fashion.

Bottom Line for Extending This Methodology and Applying It to Other Services and Additional MOSs

We recommend that our methodology for summarizing training and education courses (developed in Phase I) be applied using the "Top Skills" approach. This approach relies on group discussions with training and education SMEs (instructors and course developers) who participate in a guided discussion about their responses to the short form located in Appendix D. That guided discussion should include probing for stories to back up any statements about the top skills, and group discussion about why each participant chose certain skills in the list of top skills addressed by the training and education. In the end, the researchers will need to edit the stories and use their expert judgment to determine which stories are usable and relevant to a particular skill and which are not. Course materials will need to be reviewed to help inform the write-ups of the course summaries and to prep for meetings with SMEs. We also recommend vetting the current and future write-ups with additional instructors outside the group discussion process, with recent course graduates, and with civilian employers. Because administering these steps was not possible to accomplish during our pilot study, researchers would need to design an approach for this effort.

We recommend that the on-the-job experience methodology (developed in Phase II) be applied using audiotaped guided focus group discussions with follow-on interviews to supplement the stories obtained from the focus groups. A skilled interviewer should lead the focus groups. The questionnaire located in Appendix F should be administered during the focus groups; however, the skill-level questions should be omitted. Stories resulting from the focus groups should be edited and vetted by additional military and civilian SMEs and then revised by the researchers. SME discussions should take place in person and, like the focus groups, be led by a skilled interviewer. Additional military personnel should also be surveyed (see the survey in Appendix G) to determine which skills are most critical to the job (again, the skill level questions should be omitted). We also recommend sending the written vignettes to additional military personnel via survey after the revisions to further ensure their validity and to solicit additional feedback on the content. Because we were unable to administer this step during the pilot study, researchers would need to craft additional survey items to address it.

Making the Most of the Toolkits

As stand-alone documents, the prototype toolkits that we produced have the potential to be useful for helping veterans talk about their skills with employers. Likewise, they have the

potential to raise awareness among employers about the types of nontechnical skills veteran applicants may bring to the table. However, our recommendation is to undertake additional initiatives to get the greatest impact from the prototype toolkits.

First, we recommend a further research effort to vet the prototype toolkits with a broad range of intended users (civilian employers, veterans, and veteran career counselors) to guide continuing updates and improvements. User feedback on the prototype toolkits is critical to maximizing their usefulness and may lead to important changes to the format and content. The earlier that feedback is obtained, the sooner new toolkits can capitalize on any improvements that result.

Second, given our finding that veterans can have difficulty in translating their nontechnical skills in ways that make sense to civilian employers, we recommend pairing veterans with career counselors and other skilled professionals to get the greatest impact from the prototype toolkits. No training for users of the toolkits yet exists. Therefore, we suggest that people who are assisting veterans and meeting with employers be trained in how to maximize the effectiveness of the toolkits. Those trained in how to use the toolkits could then coach veterans in how to adapt the included vignettes to their own experiences during their job searches. Distance learning programs could also be developed that instruct veterans in the use of the toolkits and lead them step-by-step through the process.

Closing Thoughts

We developed a pair of toolkits that could be useful not only to veteran members of the combat arms branches but also to transitioning veterans in other branches and potentially in the other services. For many of those in combat arms professions, the prototype toolkits identify skills that are critical for their jobs, provide relatable representative stories about their on-the-job experiences, and describe the top skills addressed in their military training and education. More broadly, the materials illustrate how all veterans can describe their experiences on the job in ways that would resonate when writing résumés or meeting with employers. The stories provide a benchmark against which members of the combat arms and non–combat arms professions can compare their own on-the-job and training and education experiences. Looking at the course summaries and on-the-job experience tables, veterans can determine whether the priorities in their own occupational specialty are similar or different from those reported in the toolkits. They can also compare the stories provided about military courses and on-the-job experiences to determine whether their experiences were similar or different. These are just a few examples of how the materials can be used more broadly than just for the combat arms professions.

Although the materials have the potential to be useful to veterans from other military occupations, we do note that there may well be value in replicating and extending this process to produce materials for a range of other types of occupations both within and across the services. In this study, we conducted a preliminary exploration of this issue with SMEs from a few other non–combat arms MOSs. In their view, many—though not all—of the vignettes we collected were applicable to those other MOSs with minimal to no changes. Thus, our preliminary look at this issue also suggested that at least some of stories of on-the-job experiences could differ in meaningful ways across jobs and services. For that reason, it would be ideal to capture some examples from MOSs outside of the combat arms (and in the other services) in

additional materials. Doing so could ultimately help employers better appreciate the breadth of experiences that can occur in military jobs. And it could fill perceived gaps in the existing toolkits—most importantly, where the examples are too context-specific to translate to other military jobs.

Acknowledgments

We would first like to thank the Transition to Veterans Program Office of the Office of the Under Secretary of Defense for Personnel and Readiness for sponsoring and providing support for this study and report, particularly Susan Kelly, Karin Orvis, and Nathan Ainspan.

Achieving the study's goals required detailed knowledge of the content and instructional methods of institutional training and education, thoughtful and insightful descriptions of the on-the-job experiences of a large number of military personnel, and considerable assistance in coordinating research activities so as to not interfere with ongoing military training, education, and tasks.

We are also grateful for the high level of support that we received from unit leaders, as well as training and education staff and instructors from a wide range of military organizations. In the Army, these organizations included the following:

- the Army's Institute for Noncommissioned Officer (NCO) Professional Development (especially Chris Pickett, Danny Hubbard, Chris Colimon, and Liston Bailey)
- the U.S. Army Center for Initial Military Training (especially CSM Dennis Woods and SGM Thomas Campbell)
- the U.S. Army Sergeants Major Academy (especially CSM Maurice Thorpe, MSG Chris Cass, Charles Guyette, and SFC Wilson Travis)
- Fort Benning's Maneuver Center of Excellence (especially CSM Tim Metheny, Mark Fair, SFC Michael Woodward, and SFC Craig Miller)
- Fort Leonard Wood's Maneuver Support Center of Excellence NCO Academy (especially SSG Chrystal Davis)
- Fort Hood's III Corps NCO Academy (especially MSG Michael Pak)
- Fort Lee's Army Logistics University (especially Lesley Crutchfield)
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  - Fort Riley (especially Glenwood McLaurin)
  - Fort Stewart (especially Patrick Bean)
  - Fort Carson (especially Michele Magrini).

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- 5th Battalion, 11th Marines (especially Maj. Robert Shearer)
- Manpower Plans and Policy Division, Manpower Studies and Analysis Branch (Maj. Kerry Hogan)
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We also want to express our sincere thanks to the close to 2,000 Soldiers and Marines who participated in focus groups or expert panels or completed surveys in support of this work. Their combined responses provided the raw materials used in developing the final content for the toolkits.

Finally, thank you to Henry Leonard and Meredith Kleykamp for their reviews containing helpful advice and feedback on this report and the pair of prototype toolkits. The report and toolkits benefited substantively from the complete RAND Quality Assurance review.

CHAPTER ONE

Introduction

In the 13 years following the 9/11 attacks, about 2.4 million personnel left the military (Flournoy, 2014), and the U.S. Department of Veterans Affairs' (VA's) National Center for Veterans Analysis and Statistics (2014) predicts that between 2014 and 2019, roughly another million will shift to civilian life. One of the key challenges these transitioning veterans face is securing gainful employment in the civilian job market. Veterans have a great deal to offer to potential civilian employers, including both the technical skills they may have learned and practiced in the military (e.g., mechanical repair, engineering, computer science) and valuable nontechnical skills, such as leadership, oral communication, decisionmaking, persistence, and attention to detail. The Transition to Veterans Program Office (TVPO) of the Office of the Under Secretary of Defense for Personnel and Readiness has dubbed these nontechnical skills *essential skills*, because they are broadly desired in the civilian marketplace; we refer to them simply as *skills* throughout this report.

Understanding which of these skills veterans have received formal training and education in and can likely demonstrate on the job is challenging, particularly for enlisted members from the combat arms professions, because military and civilian workplace cultures and languages can seem radically different from one another. If the U.S. Department of Defense (DoD) can describe these nontechnical skills in terms that both military personnel and civilian employers can understand, veterans may be better able to find employment for which they are qualified and trained. And the civilian sector would have an improved opportunity to capitalize on veterans' skills, many of which were developed through training, education, and work experience paid for by U.S. taxpayers.

Through the Veterans Opportunity to Work (VOW) to Hire Heroes Act of 2011 and executive orders, including Executive Order 13518, *Employment of Veterans in the Federal Government* (2009), the White House and Congress have charged DoD, the VA, the U.S. Department of Labor (DoL), and other agencies with integrating the transition process into every service member's military life cycle and otherwise improving veterans' transition process. One example of work that has been done to support that transition process in response to the executive orders and the 2011 act is the redesign of the Transition Assistance Program (TAP). Although it has been in operation for over two decades, TAP was redesigned to be more cohesive and comprehensive for veterans. The redesign included a multiple-day, mandatory program designed to educate veterans in job skills, available benefits, and personal finances (Turner, 2012).

A variety of support tools have also been made available through DoD and other sources that further address the charge to improve the veteran transition process. The following online tools translate the *technical skills* (or job-specific areas of competence) in specific military occu-

pations to their civilian equivalents and connect similar military and civilian occupations (e.g., technical skill requirements for military aircraft maintainer jobs are compared with and mapped onto technical skill requirements for civilian airline aircraft maintenance jobs; the technical skill requirements of military personnel jobs are mapped onto the technical skill requirements of civilian human resources jobs):

- Military.com's Military Skills Translator: http://www.military.com/veteran-jobs/skills-translator
- the U.S. Department of Defense Transition Assistance Program's Verification of Military Employment and Training (VMET) tool: https://www.dmdc.osd.mil/tgps/
- O*NET military occupational specialty (MOS) converters: https://www.onetonline.org/crosswalk/MOC.

See Appendix A for links to additional translation resources.

While these *technical skill* translators are well developed, there is currently a dearth of tools provided by DoD or other sources to help veterans to describe what are often thought of as both *soft skills* and *nontechnical skills* (such as leadership, teamwork, written communication, and handling workplace stress) to potential civilian employers. For example, although current tools such as Military.com can be used to translate the job of a tank mechanic in the Army to an equivalent mechanic's job in the civilian world, they do not typically provide a comprehensive list of key nontechnical skills that are acquired or utilized while in the Army tank mechanic occupation.

Notable exceptions that do provide some information on these nontechnical skills include selection tools and leadership assessments used by each service to determine admission and promotion decisions—such as the Civilian Leader Improvement Battery (CLIMB), the Future Force Performance Measures, and the Interpersonal Skills Assessment—and other research conducted by the Army Research Institute for Social and Behavioral Sciences on skills assessment. Yet these exceptions still are not geared directly toward helping veterans communicate with the civilian employer audience. And no tools currently exist that are explicitly designed to provide intuitive and concrete examples of how essential nontechnical skills are taught and applied in the military in ways that illustrate their applicability across many types of civilian jobs.

Given that it is these nontechnical skills that could help set veterans apart from some of their civilian counterparts, better tools for communicating about these skills in terms that are relevant to civilian employers and that resonate with veterans are therefore needed. That is the goal of the effort described in the remainder of this report.

Objectives

TVPO commissioned the present study to further support the TAP redesign efforts. The study was conducted to address the following objectives:

1. As a proof of concept, for a subset of military occupations, develop a pilot set of materials that enlisted veterans can use to help communicate their skills to potential civilian

employers and that civilian employers can use to understand veteran job applicants' skills.
2. Document the methodology used to create the pilot materials so that the process can be replicated for other occupations in the future.

This report focuses on the second of these two objectives: describing the methodology used to develop the materials. Separate publications present the materials themselves.

Approach

This report documents the systematic process we followed to translate the military parlance for veterans' nontechnical skills into more widely understood terminology. In this pilot study, we focused on developing materials for enlisted members of selected combat arms branches of the Army and the Marine Corps, as our sponsor identified those groups as an important group of transitioning veterans who tend to find transitioning particularly difficult. The materials we produced—intended to serve as a proof of concept—will be made available to veterans, career counselors, and civilian employers.

We developed the prototype materials in a two-phase effort. In Phase I, we developed a list of essential workplace skills and their definitions (discussed in detail in Chapter Two), then created materials that show how skills from that list are developed through formal *military training and education courses*. In Phase II, we added to the list of essential workplace skills and expanded the materials to include vignettes illustrating how Soldiers and Marines develop skills from the list through *on-the-job experience*. We briefly summarize our methodology for both phases below and in further detail in Chapters Three and Four.

We ultimately created a pair of prototype toolkits, one targeted at employers and the other at veterans:

- *What Veterans Bring to Civilian Workplaces: A Prototype Toolkit for Helping Private-Sector Employers Understand the Nontechnical Skills Developed in the Military*, by Chaitra M. Hardison, Tracy C. McCausland, Michael G. Shanley, Anna Rosefsky Saavedra, Angela Clague, James C. Crowley, Jaclyn Martin, Jonathan P. Wong, and Paul S. Steinberg, Santa Monica, Calif.: RAND Corporation, TL-160-1-OSD, 2017, available at www.rand.org/t/TL160-1
- *What Veterans Bring to Civilian Workplaces: A Prototype Toolkit for Helping Veterans Communicate to Private-Sector Employers About the Nontechnical Skills Developed in the Military*, by Tracy C. McCausland, Michael G. Shanley, Chaitra M. Hardison, Anna Rosefsky Saavedra, James C. Crowley, Jonathan P. Wong, and Paul S. Steinberg, Santa Monica, Calif.: RAND Corporation, TL-160/1-1-OSD, 2017, available at www.rand.org/t/TL160z1-1.

Phase I: Summarizing Skills Gained Through Formal Military Training and Education Courses

Scoping the Effort to the Time Frame

Our aim in Phase I was to develop materials that summarize skills gained through formal military courses—and to do so in a way that could be replicated beyond the military specialties on

which our pilot effort focused. Therefore, although we focused on the combat arms specialties in our pilot study, we sought an approach that could be applied to as broad a set of courses as possible.

Phase I was conducted under pressing time constraints, with a turnaround time of six months. Because of this, we could develop materials for only a select set of courses. We chose that set based on the following criteria:

- courses generally required for promotion
- courses that are typically completed by the greatest number of transitioning veterans (i.e., completed by most personnel of ranks of E-7 and lower)
- courses that potentially generalize beyond the combat arms occupations
- courses that likely address some nontechnical skills.

In all cases, the services were supportive of our efforts, but in a few cases we were unable to obtain the necessary materials prior to the Phase I deadline.

Based on our course selection criteria and limited by the courses for which we were able to obtain materials, we selected the following courses from the combat arms occupations for inclusion in the prototype materials:

- **Army:** Basic Combat Training, Basic Leader Course, Advanced Leader Course, and Senior Leader Course
- **Marine Corps**: Corporals Course, Sergeants Course, Career Course, and Advanced Course.

Developing Materials

To create the materials, we consulted existing literature to create a list of the types of nontechnical skills that civilian employers value and that personnel might develop through military courses. Using this list as a starting point, we then documented which skills are addressed in courses by examining relevant training and education materials and holding discussions with subject-matter experts (SMEs), such as instructors and training and education developers.[1]

The end goal for both phases was to create a pair of prototype toolkits, one for veterans and one for employers. The training and education materials developed in Phase I included the following:

- *Course summary tables*. We created a set of matrixes providing an overview of the skills most addressed in each course (one for Army courses and one for Marine Corps courses). These tables play a role akin to a table of contents, providing veterans and employers with a quick and high-level understanding of which skills are emphasized. The tables provide the highest-level information.
- *Course overviews*. For each set of course summary tables, we also included a set of course overviews, designed to provide concrete examples of how each course develops the listed skills. The course overviews provide more depth to back up the tables.

[1] The Phase I study was reviewed by the RAND Institutional Review Board and the Office of the Secretary of Defense's (OSD's) second-level review office.

- *Instructions and questions and answers.* We also accompany the tables and skill summaries with a set of instructions and questions and answers geared to the veteran and civilian employer audiences, to guide them using the toolkits.

Phase II: Summarizing Skills Gained Through On-the-Job Experience

Scoping the Effort to the Time Frame

Similar to Phase I, our Phase II objectives were to develop a tenable methodology and to produce prototype materials for a sample of combat arms specialties. In this phase, we focused on developing materials that summarize on-the-job experiences that, together with skills gained during formal military training and education (captured in Phase I), comprise the full nontechnical skill set of transitioning veterans. Our decision regarding which combat arms military occupational specialties (MOSs) to select was guided by the following criteria:

- number of transitioning veterans within an MOS
- accessibility to respondents.

Using these criteria, we selected a total of four combat arms MOSs for which to develop prototype materials. Although the focus of our prototype materials was on these four combat arms MOSs (which we refer to as the *focal MOSs*), we also conducted focus groups and/or administered surveys to four more MOSs, three from the Army and one from the Marine Corps, to conduct a preliminary investigation into the generalizability of these results. We refer to these in the remainder of this report as the *additional MOSs*. The following are the four focal and four additional MOSs explored in our study:

- Army
  - Focal: 11B Infantry and 19K Armor
  - Additional: 88M Motor Transport, 31B Military Police, and 92Y Unit Supply Specialist
- Marine Corps
  - Focal: 03 Infantry and 08 Artillery
  - Additional: 06 Communications.

Developing Materials

To create the materials, we interviewed military job incumbents to collect a rich account of stories illustrating performance of nontechnical skills on the job, and we vetted the stories with additional SMEs. We also surveyed these individuals and other members of the focal and additional MOSs to determine which of these nontechnical skills are the most critical in their jobs.[2]

From the Phase II results, we produced a prototype set of materials summarizing on-the-job experiences of military job incumbents, similar to the course summaries produced during the Phase I effort. The Phase II materials include a set of *on-the-job experience summary tables* (listing the skills veterans typically gain through on-the-job experience at each grade) and supporting *on-the-job experience vignettes* (typical on-the-job experiences, written in terms accessible to both veterans and civilians employer audiences). We combined the Phase I and Phase II materials to produce the prototype toolkits.

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[2] The Phase II study was reviewed by the RAND Institutional Review Board and OSD's second-level review office.

Intended Use of the Materials Developed During Phases I and II

The pilot effort described in this report focused on skills within the enlisted occupations identified by our sponsor as the most challenging career areas for transitioning to civilian employment—combat arms branches in the Army and Marine Corps. Because the pilot effort focused almost exclusively on a subset of enlisted MOSs within the combat arms occupations, the stories and results included in the prototype materials reflect only the experiences of those specific branches and MOSs. The materials should therefore be useful to transitioning members of the combat arms occupations, because the content and experiences in the vignettes is based on their occupations and likely familiar to them.

The toolkits also have the potential to be helpful to a wider range of transitioning veterans in MOSs beyond combat arms, in several ways. First, many service members in all MOSs will have received training and education in nontechnical skills comparable to those provided to the combat arms (e.g., the services teach all personnel to work in teams). In some cases, their experiences may be nearly identical. The same can be said of the on-the-job experience vignettes, some of which may be broadly applicable to all MOSs, in that they contain little to no information that would be recognizably specific to the combat arms occupations. Of course, many vignettes include language and tasks that are more MOS-specific. In the latter cases (where examples are MOS-specific), veterans can instead leverage the approach used in the materials—relying on concrete examples of both training and on-the-job experiences and presenting those examples using nonmilitary language—to explain the skills they gained through their own MOS and training experiences. Indeed, service members who participated in the present research often offered the feedback that they benefited from hearing about the experiences of others and that they would factor what they learned into how they spoke with employers after they transitioned out of the service.

In a similar vein, civilian employers can also use these materials to better understand the skills of a wide range of veterans, not only those in the combat arms occupations. Through the use of these concrete examples, employers can gain a better sense for how these nontechnical skills, which are so desired in the civilian workplace, also take center stage in the military, even in jobs that are very different from any that exist in the civilian world. In this way, the employer toolkit can help employers to better understand how these essential skills may be embedded within a veteran's experiences, even if the veteran was in a highly technical MOS and even if the skills are not called out in a veteran's résumé. The materials can then be used to generate interview questions that ask about the essential nontechnical skills that veteran job applicants may already have, even if they are not members of the combat arms professions. In this way, the information contained in our prototype toolkits will likely be useful to a wider audience.

Organization of This Document

In Chapter Two, we discuss the methodology for developing our list of nontechnical skills. In Chapter Three, we describe the methodology used to develop the Phase I toolkit materials, which focus on military training and education. In Chapter Four, we describe the methodology used to develop the Phase II materials, which focus on on-the-job experiences. In Chapter Five, we summarize lessons learned through the Phase I and II methodology development processes. We also include several appendixes, which provide more information on veterans' skills that employers value and on forms and other materials we used in implementing our methodology.

CHAPTER TWO

Creating the List of Relevant Nontechnical Skills

We compiled a list of nontechnical skills that describe aspects of workplace performance that civilian employers desire in employees and that enlisted military personnel might have the opportunity to develop through military training, education, and on-the-job experiences. To compile this list, we consulted three sources: existing lists of nontechnical skills believed to be possessed by veterans, research literature defining the nontechnical skills that employers tend to value in all employees, and additional skills that we identified during the process of summarizing the training and education courses or that were suggested in feedback from reviewers of the work. From the first two sources, we identified 16 skills to be included as our starting list for discussions with instructors and for coding the course materials during our Phase I study. We then expanded the list to include three more skills during Phase II. The initial development work and the addition of the three new skills are discussed in remainder of this chapter.

On the Interchangeability of Key Terms

We sought to define the desired aspects of workplace performance that we have chosen to refer to in this report as *nontechnical skills*. Although we use the term *skills* in this report, the aspects of workplace performance could fall under several other names used in the research and employment literature. For example, they could include what some refer to as *knowledge, skills, abilities, and other characteristics* (KSAOs), *workplace competencies*, *job performance dimensions*, *soft skills*, or simply *workplace skills*. Because there are already many well-researched and widely used models of workplace competencies, job performance dimensions, and taxonomies of relevant KSAOs, we reviewed those existing lists as starting places for work we present here.

The idea of *workplace competencies* is commonly traced to McClelland's seminal 1973 paper, which argued that an individual's competencies or individual characteristics can predict success in life and work. However, as noted above, competencies can include what other researchers call KSAOs, as well as behavioral characteristics, such as motivation and values (Stevens, 2013). As a result, the overlap between these concepts can be significant. For that reason, we reviewed both and report on a handful of well-researched models below. In describing those models, we use the terms of art specific to those models, but all served to inform our *nontechnical skills* list. *Competency models*, in particular, have received a great deal of traction in the civilian workplace, and most researchers use that term instead of *KSAOs*.

Competency models are often intended to serve as the foundation for organizations' human resources systems—driving hiring, training and education, performance review, compensation, and other decisions—but they can also inform other functions, such as strategic

organizational development (Stevens, 2013). Several competency models (such as the U.S. Office of Personnel Management's Executive Core Qualifications competency model) have been well established and used widely for these purposes.

Types of Nontechnical Skills Commonly Cited in Work on Transitioning Veterans

Our sponsor identified three main sources as their desired starting list of skills that civilian employers report that they value in veterans: *Employing America's Veterans: Perspectives from Business* (Margaret C. Harrell and Nancy Berglass, 2012); *The Business Case for Hiring a Veteran: Beyond the Clichés* (Institute for Veterans and Military Families, Syracuse University, 2012); and "10 Reasons to Hire Veterans" (Military.com, no date).

Harrell and Berglass interviewed 87 representatives of 69 organizations, and their article emphasizes seven skills employers tend to believe that veterans display, including leadership, teamwork, character, and discipline. The authors of *The Business Case for Hiring a Veteran* reviewed academic literature to demonstrate the skills veterans bring to civilian workplaces, particularly teamwork, adaptability, resilience, organizational commitment, entrepreneurship, integrity, active learning, cross-cultural experience, and ability to handle work stress. The Military.com article highlights competencies that overlap considerably with the other two sources. In combination, these three sources cite ten skills as being characteristic of veterans (listed in alphabetical order in Table 2.1).

Table 2.1
Ten Competencies That Civilian Employers Value in Veterans

Ability to organize and get the job done
Ability to operate safely
Active learning
Decisionmaking
Discipline
Leadership
Problem solving
Resilience
Respect for procedures
Teamwork

Types of Nontechnical Skills Mentioned in Research in Other Employment Settings

To determine whether any additional skills should be included in our starting list, we also reviewed more-general lists of competencies that employers value in *all* employees (as opposed to those they value more specifically in veteran employees).

Many individuals and organizations from business and academic backgrounds have created lists of these types of competencies. In a 2012 synthesis of the competencies that employers seek in employees, the U.S. Department of Education created a matrix that shows the nine competencies that 19 "widely cited" sources most frequently include as part of their competency models. Examples of widely cited sources include international organizations, such as the Assessment and Teaching of 21st Century Skills project; U.S.-based national employment organizations, such as the DoL; national credentialing organizations, such as the National Work Readiness Council; and state-based organizations, such as the Maryland Department of Education and its Skills for Success initiative, and city-based organizations, such as Chicago Public Schools.

The U.S. Department of Education's "Employability Skills Framework—Source Matrix" (U.S. Department of Education, 2012; see Appendix B) lists the 19 organizations individually and marks in each cell whether each organization includes each of nine competencies in its list. The nine competencies are as listed in Table 2.2:

Because the Department of Education synthesis includes both technical and nontechnical competencies, we did not borrow directly from this list. We chose instead to turn to three other sources—the DoL, the U.S. Office of Personnel Management (OPM), and the National Research Council—as our primary guides in developing our model of the competencies that employers seek in all employees. We examined documents from these sources to further develop our list of skills that veterans have the opportunity to develop through their formal training and education, and to help us create definitions for each of the skills on the list that incorporated language that was congruent with those sources and understood by employers. These references are discussed below.

Table 2.2
Nine Competencies from the U.S. Department of Education Matrix

Applied academic skills
Communication skills
Critical thinking skills
Information use
Interpersonal skills
Personal qualities
Resource management
Systems thinking
Technology use

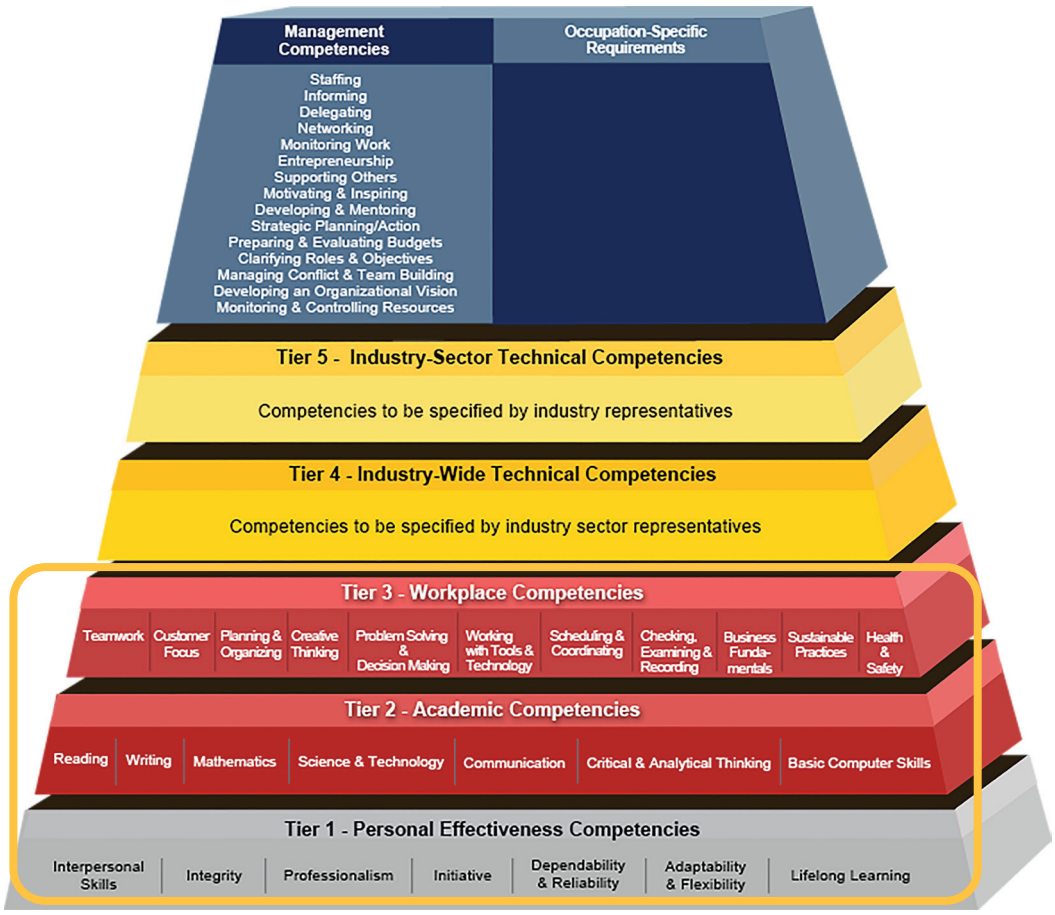
SOURCE: U.S. Department of Education, 2012.

U.S. Department of Labor

Based on a 1997 review of nearly 1,000 occupations, the DoL developed lists of the KSAOs that employees need to successfully fulfill the requirements of different occupations across various industries. These KSAOs are documented in an online database known as the Occupational Information Network (O*NET). The DoL also developed what it calls a "Generic Building Blocks Competency Model" (Figure 2.1) that outlines "generic" competencies, most of which are nontechnical, that employees need to perform successfully across a large number of occupations (DoL, 2014).

The model is organized as a pyramid in which the bottom tiers are composed of "personal effectiveness competencies" (e.g., interpersonal skills), "academic competencies" (e.g., critical thinking), and "workplace competencies" (e.g., teamwork), all of which are generic enough to apply across many industries and occupations. As circled in the figure, skills from the bottom tiers contributed to the list for this effort. The top of the pyramid includes "management competencies" (e.g., delegating), which are fairly generic and translatable to the leadership and management/supervision competencies that personnel develop through military training, education, and experience. The middle tiers—"industry-wide technical competencies" and

Figure 2.1
Department of Labor "Building Blocks" Competency Model



SOURCE: DoL, 2014.

RAND *RR1919-2.1*

"industry-sector technical competencies"—do not refer to the nontechnical skills of interest in this project.

We included many of the competencies from the Building Blocks model in the list of skills we adopted for this project. The DoL has also developed extensive definitions for each of its competencies, which, as we explain further below, we drew from substantively to define the competencies we ultimately included.

U.S. Office of Personnel Management

OPM has been identifying competencies necessary for successful performance in federal clerical, technical, and leadership occupations for more than 20 years. OPM's competency-model development process—known as the Multipurpose Occupational Systems Analysis Inventory–Close-Ended (MOSAIC)—includes five steps (Rodriguez et al., 2002, p. 312):

- literature and job document review
- competency and related task development
- development of survey scales (surveys administered to employees and their managers)
- development of competency proficiency levels or benchmarks
- development of competency-based questions.

The 2013 version of the OPM competency list includes 325 competencies and their definitions. Based on extensive analysis of the MOSAIC data, OPM has created competency models for seven job clusters: (1) clerical and technical, (2) professional and administrative, (3) leadership and managerial, (4) information technology, (5) trades and labor, (6) science and engineering, and (7) law enforcement. For example, the leadership and managerial model, known as the Leadership Effectiveness Framework, includes 28 "executive core qualifications" organized into meta-categories: leading change, leading people, results-driven, business acumen, building coalitions, and fundamental competencies. OPM has developed proficiency levels for each of the 28 competencies, based on an ascending scale of 1 to 5. We discuss the proficiency levels we developed for this study in further depth later in this chapter.

Since each individual OPM model is too specific for this study, we did not base our competency model on any of the OPM models. However, the OPM models guided our thinking about how many meta-categories and specific competencies to include in our model. For example, the OPM "fundamental competencies" include interpersonal skill, oral communication, integrity/honesty, written communication, continual learning, and public service motivation.

National Research Council

A 2012 National Research Council report, *Education for Life and Work: Developing Transferable Knowledge and Skills in the 21st Century*, synthesizes quite exhaustively the industrial/organizational, education, economics, behavioral psychology, business, and other disciplinary literatures on valued skills (the authors use the term *21st century competencies*, while we use the term *nontechnical skills*). The report synthesizes the O*NET conceptions of skills necessary for the civilian workplace with those from seven more recent syntheses of papers on 21st century skills, as well as the psychology "Big Five" personality traits literature. (The eight reports synthesized in *Education for Life and Work* are listed in Appendix K.) The National Research Council report suggests a taxonomy that organizes desired workplace competencies into three main categories: cognitive competencies, intrapersonal competencies, and interpersonal com-

petencies. We expanded on and modified this taxonomy in our competency model, as we describe below.

Creating the Skills List for the Phase I Study

Once we understood the fairly limited literature on skills that civilian employers value in veterans and the vast cross-disciplinary literature on skills employers value in all employees, we began to develop a list that represented the competencies or nontechnical skills that veterans might have the opportunity to develop through training, education, and experience and that civilian employers seek. Our goal was to develop a list that was broad enough to fully describe the skills that service members develop through military training and education and that civilian employers value, yet not so long as to be cumbersome for veterans and employers to use.

We began with the list of ten competencies that employers value in veterans and added 36 additional competencies suggested by our review of the DoL, OPM, National Research Council, and other resources. The DoL, OPM, National Research Council, and other publications also suggested skills that encapsulate several of the terms from the initial "veterans" list in Table 2.1 in a useful way. We used these broader terms to adapt the initial list as follows:

- behaving conscientiously: incorporates the ideas of discipline, respect for procedures, autonomy, and productivity
- handling work stress: incorporates the idea of resilience, as well as productive stress management, working under pressure, effectiveness under pressure, and triumph over adversity
- project planning: incorporates the ideas of organization, planning, and scheduling.

The list we used to test-code the first course we reviewed (the Army's Basic Leader Course [BLC]) included 28 skills, listed alphabetically in Table 2.3.

Table 2.3
List of Skills Used in Test-Coding the BLC

Behaving conscientiously	Monitoring and controlling resources
Being dependable and reliable	Motivating and inspiring
Clarifying roles and objectives	Negotiation
Continuous learning	Oral communication
Critical thinking	Operating safely
Decisionmaking	Persistence
Delegating	Project planning
Developing and mentoring	Staffing
Entrepreneurship	Supervising
Handling work stress	Team-building
Intercultural skills	Teamwork
Interpersonal skills	Training
Leadership	Understanding of strategic issues
Managing	Written communication

As we worked our way through the BLC coding process, we decided to consolidate the list, dropping some categories and merging the DoL's Building Blocks managerial skills into the "leadership," "managing/supervising" and "training" skills. Our final list, as we show in Table 2.4, includes 16 skill dimensions organized into five meta-categories. Although the purpose of the meta-categories was to help users to notice differences among the dimensions within a meta-category (as explained below), the meta-categories are not unlike those from the National Research Council (2012) report taxonomy.

Further Defining Each Skill

Part of the process of narrowing down to the final model involved precisely and discretely defining what each skill dimension means, so that where particular experiences were coded would not overlap. We grouped skills into meta-categories if they shared similar words or features that were likely to lead to confusion during coding. For example, training others and engaging in continuous learning were frequently confused, because both involve an emphasis on training. However, one focuses exclusively on training other people, whereas the other focuses on developing oneself by continuously seeking out opportunities to learn. To help eliminate this type of confusion, the definitions for each dimension were crafted to specifically highlight differences between the terms within a meta-category when applicable.

To define the competencies, we looked primarily to the DoL and OPM, both of which have developed thorough skill definitions through iterative input from many industrial/organizational psychologists. The DoL definitions are very long and detailed, encompassing several paragraphs of text (DoL, 2014), while the OPM definitions are short and succinct, explained in just one or two sentences (OPM, 2013). Our definitions straddle the middle ground; they are succinct enough to be a useful tool for veterans' and employers' practical use, yet also detailed enough to separate each skill into a discrete idea. We also looked at minor

Table 2.4
Final Phase I Model Consisting of 16 Skills

Meta-Category	Skill
Cognitive	• Decisionmaking/decisiveness • Critical thinking
Professional development	• Continuous learning • Training others
Interpersonal	• Teamwork and team-building • Interpersonal skills • Oral communication • Written communication
Intrapersonal	• Operating safely • Handling work stress • Being dependable and reliable • Conscientiousness and attention to detail • Persistence
Leading, supervising, and managing people and projects	• Project planning • Leading, motivating, and inspiring others • Managing and supervising

alterations in the definitions to ensure that each one addressed a contained construct that did not overlap with that covered by the definitions of other skills.

To aid in the process of defining clear boundaries between terms, we also developed lists of "related" terms for each skill on our list. Related terms are those with similar definitions and considerable overlap in meaning. For example, terms related to *critical thinking* include *analytic thinking*, *reasoning*, and *problem solving*. Table 2.5 includes the 16 skills, related terms, and definitions used in Phase I.

Refining the List for Phase II

Following the development of prototype materials during Phase I (which focused on skills gained during formal military training and education), we added three skills to the list before conducting Phase II of the study (which focused on developing similar materials for skills gained during on-the-job experiences). Feedback from reviewers of our Phase I work and discussion with SMEs suggested the inclusion of three additional skills: *adaptability*, *behaving ethically*, and *situational awareness* (which are also shown in Table 2.5). For each added skill, we developed definitions by again examining previous literature (e.g., DoL, 2014; Endsley, 1988; Pulakos et al., 2000) and through discussion with SMEs.

During Phase I, we also noticed that some of our training and education SME participants glanced at the list of skills during the training and education discussion but did not read the definitions carefully. As a result, we opted to highlight a few important aspects of each definition (a sentence or two) by bolding the font (also shown in Table 2.5), to help participants in Phase II scan the information quickly.

Table 2.5
Final List of Skills, Related Terms, and Skill Definitions

Skill Name	Definition (Related Terms)
Cognitive	
Decisionmaking/ decisiveness	Chooses the best solution or option in a timely and decisive manner, even in ambiguous situations and without assistance when appropriate. *(related terms: assertive, authoritative, resolving)*
Critical thinking	Actively and skillfully conceptualizes, applies, analyzes, synthesizes, and evaluates information to formulate options and to reach a conclusion. Demonstrates mental agility and the ability to reason, anticipate obstacles, identify problems, locate, gather, and organize relevant information, generate alternatives, evaluate and analyze information, and apply what is learned. *(related terms: analytic thinking, reasoning, argumentation, interpretation, problem solving)*
Directing People and Projects	
Leading, motivating, and inspiring others to accomplish organizational goals	Influences and inspires others by providing purpose, direction, and motivation to accomplish the organization's tasks and goals and improve the organization's capabilities; adapts leadership styles to a variety of situations; offers career development opportunities to subordinates; mentors others' skills, abilities, attitudes, future intentions, and career issues; recognizes achievements; sets an example for others; encourages other's self-assessment and enhancement of skills in an activity; and promotes training, learning, and preparing for the future. Generates enthusiasm for task objectives and team accomplishment through standard and creative influence techniques. Recognizes contributions and achievements of all types, among people in high- and low-visibility activities alike. Rewards employees for high performance. Sets an example for others by acting in ways that are consistent with organizational goals and objectives. *(related terms: administering, overseeing, organizing people)*
Managing/ supervising the work of others	Organizes, coordinates, and leads subordinates in work efforts to effectively and efficiently accomplish organizational goals and objectives. Involves staffing, delegating roles and responsibilities, clarifying objectives, and monitoring, assessing, adjusting, and rewarding the actions of subordinates. Requires knowledge and experience applying performance management concepts, principles, and practices. *(related terms: administering, overseeing, organizing)*
Project planning	Identifies resources, plans, organizes, schedules, and coordinates tasks and activities so that work is completed effectively and efficiently. Prioritizes various competing tasks and performs them quickly and efficiently according to their urgency. Finds new ways of organizing work areas or planning to accomplish work more efficiently. *(related terms: project management, strategic planning, organization, coordination, planning, scheduling)*
Professional Development	
Continuous learning	Takes the necessary actions to develop and maintain knowledge, skills, and expertise; demonstrates an interest in learning; anticipates work changes; identifies career interests; applies a range of learning techniques; integrates newly learned knowledge and skills with existing knowledge and skills; and is aware of own cognitive processes. *(related terms: adaptive learning, willingness to learn, active learning, metacognition)*
Training others	Plans, organizes, and conducts activities that increase the capability of individuals or organizations to perform specified tasks or skills. Has knowledge and experience applying employee development concepts, principles, and practices related to planning, evaluating, and administering training and education initiatives. *(related terms: teaching, developing skills)*

Table 2.5—continued

Skill Name	Definition (Related Terms)
Interpersonal	
Teamwork and team-building	Establishes productive relationships with other team members to perform team tasks and works to improve team performance; acknowledges team membership and role; and identifies with the team and its goals. Team-building activities include improving the ability of a team to work together to accomplish a task or activity; resolving conflicts within a team; developing collaboration to promote learning and expand team perspectives; discouraging unproductive behavior among team members; and encouraging and building mutual trust, respect, and cooperation. *(related terms: team player, followership, cooperation, collaboration)*
Interpersonal skills	Recognizes and accurately interprets the verbal and nonverbal behavior of others; works well with others; shows sincere interest in and sensitivity to others and their concerns, needs, and feelings; shows insight into the actions and motives of others and recognizes when relationships with others are strained; and maintains open lines of communication with others. *(related terms: demonstrating concern for others, demonstrating insight into behavior, intercultural skills)*
Oral communication	Persuasively presents thoughts and ideas; receives, attends to, interprets, understands, and responds to verbal messages and other cues; expresses information orally to individuals or groups, taking into account the audience and the nature of the information; practices meaningful two-way communication; picks out important information in oral messages; understands and is able to process complex oral instructions; and appreciates feelings and concerns of oral messages. *(related terms: speaking, public speaking, persuasive speaking, debating, active listening, two-way communication)*
Written communication	Communicates thoughts, ideas, information, messages, and other written information in a logical, organized, and coherent manner; creates documents, such as letters, directions, manuals, reports, graphs, and flow charts; presents well-developed ideas, with supporting information and examples. Uses standard grammar and sentence structure, correct spelling, and appropriate tone and word choice. *(related terms: writing)*
Intrapersonal	
Being dependable and reliable	Diligently follows through on commitments and consistently meets deadlines; behaves consistently and predictably; is reliable, responsible, and dependable in fulfilling obligations. (related terms: *getting the activity done*)
Conscientiousness and attention to detail	Diligently checks work to ensure that all essential details have been considered; performs assigned tasks and responsibilities diligently even when not under direct supervision; displays self-discipline and self-control; follows oral and written directions; complies with organizational rules, policies, and procedures. *(related terms: conscientiousness, respect for procedures, discipline, autonomy, productivity)*
Situational awareness (added during Phase II)	Perceives, analyzes, and comprehends critical elements of information in one's environment. This also includes continually seeking new information to update and refine one's understanding. More simply, know what is going on and how it relates to the goals of the individual, team, and/or organization. *(related terms: alertness, responsiveness, attentiveness, situational understanding)*
Adaptability (added during Phase II)	Responds quickly and effectively to uncertain and unpredictable work situations. Open to change, rapidly adapts to new information, changing conditions, or unexpected obstacles. Thrives in the "gray" area and requires minimal structure. Quickly learns new work tasks, technologies, and procedures. *(related terms: active learning, changing to fit the situation, able to adapt, situational flexibility)*

Table 2.5—continued

Skill Name	Definition (Related Terms)
Handling work stress	Functions effectively under pressure; remains composed under pressure and high-stress situations; does not overreact; manages frustration and other stresses well; acts as a calming and settling influence on others. Exhibits a hardiness of spirit despite physical and mental hardships; possesses moral and physical courage. *(related terms: productive stress management, resilience, effectiveness under pressure, triumph over adversity, coping)*
Persistence	Works hard to achieve a goal or accomplish an assigned task. Won't quit, does not tend to procrastinate, and completes tasks once begun. Sees work through to completion. Even in the face of failure, keeps trying. Tends to believe that success is always attainable with hard work and persistence. Works hard even when the reward is small, unlikely to be obtained, or will only be realized far into the future. *(related terms: perseverance, grit, work ethic)*
Behaving ethically (added during Phase II)	Behaves in an honest, fair, and ethical manner and encourages others to do so as well. Always does the right thing even when no one is watching. This includes (but is not limited to) performing work-related duties according to laws, regulations, and policies, but also understanding that behaving ethically goes well beyond what the law requires. Takes responsibility and maintains accountability for own actions, decisions, and roles in missions. *(related terms: integrity)*
Operating safely	Identifies and carefully weighs safety risks in making decisions and adheres to safety rules and regulations. Fosters a safety culture, wears safety gear, and encourages others to follow safety rules and speak openly of their safety concerns. Has knowledge of the principles, methods, and tools used for risk assessment and mitigation, including assessment of failures and their consequences. *(related terms: safety and risk management)*

CHAPTER THREE

Phase I: Summarizing Formal Military Training and Education Courses

After developing the initial skills list, we proceeded with Phase I, which focused exclusively on summarizing developmental training and education courses relating to those skills. That effort included two activities:

1. finding a successful approach to documenting the key skills addressed in training and education (i.e., developing a methodology to document the skills gained through selected courses)
2. using the results of that methodology to inform creation of prototype materials (i.e., the summary tables, course overviews, and accompanying instructions and questions and answers).

This chapter describes the first of these activities. The second is discussed in Chapter Five.

The ultimate goal for our process was to describe the level of each skill that was being targeted in the course and provide concrete descriptions illustrating how that skill was being applied and practiced during the course. In the interest of creating a methodology that would not require effort on the part of the services, we turned first to the existing documentation on the military courses. That documentation is highly detailed, consisting of hundreds of pages of lesson plans outlining and explaining each day's activities, so it seemed an ideal source for finding answers to our questions about which essential nontechnical skills were addressed in the training and education. We therefore created a coding procedure for reviewing those course materials and attempted to apply it.

But we quickly discovered that the existing course materials were insufficient for our purposes. We therefore subsequently turned to military training and education SMEs (course instructors and course developers) for assistance. We developed a process for structuring discussions with these SMEs; that process also faced some challenges and was refined over time.

The initial course coding methodology, the SME discussion methodology, and the challenges faced while implementing both are described in the remainder of this chapter.

Initial Attempts at Coding "Level of Skill" and "Amount of Learning"

Our initial attempts at identifying the key skills addressed in each course focused on developing a process for coding course documents. We developed that process iteratively, and it evolved as we learned more about what worked and what did not work. This evolution occurred in sev-

eral ways. First, as we mention in the previous chapter, we tested the coding process against the Army's BLC course materials. This resulted in empirically driven modifications to the skill list, definitions, similar terms, and skill anchors. Second, four RAND researchers began coding the Army's BLC to get a sense for interrater agreement using the initial coding methods. After we settled on a coding process that worked, we reduced the number of coders to one primary coder and one backup coder per course. Third, we started out trying to code the skills addressed during each lesson within a given course; however, we soon realized that doing so was time-consuming and led to poor agreement about which skills were being emphasized in a given lesson. Therefore, to increase both efficiency and interrater agreement, we adjusted the coding process to occur at the course level rather than the lesson level.

Our coding focused on two aspects of each skill: the level of the skill represented in the training and education, and the amount of learning that would occur as a result of the training and education.

Level of Skill

The military courses we reviewed for this study are intended for Soldiers and Marines at a range of pay grade levels. We hypothesized that courses intended for lower-ranking personnel assume lower levels of skill mastery upon course entry and also seek to develop lower levels of a given skill upon course graduation. For example, consider the teamwork skill. A course intended for E-5s (junior sergeants) may focus on developing the student's ability to build small group teamwork, whereas a lesson in a course intended for E-8s (senior sergeants) may focus on developing the experienced leader's ability to build teamwork among groups of leaders at the company and battalion levels. In both the E-5 and E-8 scenarios, the course develops the "teamwork" skill, but the E-5 course might develop the ability to build teams at lower organizational levels compared with the E-8 course.

To explore this issue, we developed a "Level of Skill" scale ranging from 1 to 5, with anchors at 1, 3, and 5. Our "Level of Skills" instructions requested that coders and trainers pick the highest level that best characterizes the typical level of the skill developed through each course using the following anchors:

- **Advanced Activity (5):** Involves sophisticated and highly complex applications of the skill. Mistakes in highly complex applications on the job are expected to be rare. Proficiency of beginner- and intermediate-level applications of the skill is assumed. Consequences of failures in the skill are severe for the organization. May require serving as a key resource and advising others on this skill.
- **Between Intermediate and Advanced (4)**
- **Intermediate Activity (3):** Involves applying mid-level skills and/or practicing some higher-level, advanced skills. Mistakes in highly complex applications are expected. Consequences of failures in the skill tend to be moderate in severity or likelihood. May require occasional guidance applying the skill.
- **Between Basic and Intermediate (2)**
- **Basic Activity (1):** Involves easy aspects of the skill. Sophisticated expertise or highly complex application is not expected. Mistakes are expected. Needing practice to become more proficient is expected. Consequences of failures in the skill tend to be mild. May require close and frequent guidance applying the skill.
- **None/NA/Negligible (0 or leave blank):** Involves no use of skill.

We also customized the anchors (1, 3, 5) to each of the 18 skills and prefaced them with the corresponding skill definition from Table 2.5. For example, we defined each level of the "decisionmaking" skill as follows (anchors for two other example skills are in Appendix C):

- **Advanced Activity (5):** Activity requires making decisions that could have significant organizational consequences under high-pressure situations that are time-sensitive, that lack complete information, and where the ultimate responsibility for the decisions resides with the activity holder. Inability to make decisions in these circumstances or failure to act quickly is not acceptable. Decisions in these circumstances must typically be made in the absence of complete information and when people clearly disagree about what course of action is appropriate. *Examples include making significant financial investment decisions on behalf of a company or client; making changes to major business processes, focus, or client base; making decisions about whether to proceed or abandon a risky mission; and deciding to release controversial information to the public.*
- **Intermediate Activity (3):** Activity requires making decisions that may have some organizational consequences under moderate-pressure situations that are somewhat time-sensitive. Failure to make decisions in these circumstances is acceptable at times, but habitual inability to take decisive action will impair performance in these activities. Decisions in these circumstances are made when there are multiple possible courses of action and some people might disagree about which action is best. *Examples include making changes to internal business procedures; deciding on marketing or production decisions after extensive analysis; making promotion/hiring/firing decisions; making project management decisions; making decisions about how to market a product; and deciding to replace an expensive piece of equipment to stay on schedule.*
- **Basic Activity (1):** Activity requires making decisions that may have small organizational consequences. Decisions may have to be made under conditions of some incomplete information, some uncertainty, time sensitivity, and/or small amounts of pressure. Responsibility for the decision rests with the decisionmaker, but consequences for failure to make a decision or making a bad decision are small. *Examples include inspecting products for quality control purposes and deciding when something should be scrapped; deciding whether to offer a refund to a dissatisfied customer; deciding when an announcement is ready to be sent out to clients; and deciding to cancel or change the date of an important meeting or deadline.*
- **None or Not Applicable (0):** Activity rarely, if ever, involves making decisions that have any appreciable organizational impact. Any decisions that are made are of a routine nature. *Examples include assembly line work, clerical positions, cashier jobs, delivery positions, and restaurant waitstaff.*

Amount of Learning

We also developed the coding process to account for the amount of time courses address each skill and through what means. For example, a lesson might address leadership briefly and predominantly through lecture, with minimal discussion and no practical application. Or a lesson could address leadership extensively and through intensive practical activities in an activity-based, hands-on scenario. We developed our methodology to address the amount of learning by capturing

- How many hours it takes to complete the course.
- The approximate percentage of the course time that provides opportunities to learn about or practice each skill. Because the segments of the course will typically cover more than one category of skill, the percentages will not add up to 100 percent. For example, the course might address leadership skills 50 percent of the time, oral communication skills 25 percent of the time, negotiation skills 25 percent of the time, project development skills 25 percent of the time, and management skills 50 percent of the time.
- The approximate proportion, by skill, of the activities that are practical application (realistic scenarios) versus not applied (lecture, discussion, or observation). These percentages should add up to 100 percent. For example, the course might address leadership skills 75 percent of the time through non-applied means and 25 percent of the time through practical application.

Obstacles Encountered During the Course Coding

We found coding the course documents for nontechnical skills to be very challenging and, consequently, unreliable. The reasons for the challenges became apparent only after making several attempts to code the course lesson plans, to no avail.[1]

First, it was apparent that many of the skills that might be practiced during the training and education were not necessarily listed among the explicit objectives of the course and lessons. Instead, we were forced to hunt for the skills within the lesson activities and make inferences about the roles and importance of the skills within each lesson. In some cases, lesson activities were focused on teaching or practicing one of the essential skills, yet other skills would appear to be practiced as well. In many cases, the lessons were vague enough that it was not necessarily clear which of the skills might apply. This turned out to lead to much disagreement among our ratings for all of the courses. We also found course materials insufficient to clearly divine the *level* of skill students were developing, even if we agreed that the skill was being applied.

We also learned through subsequent discussion with instructors and course developers (described more below) that the skills are often taught implicitly (rather than directly) throughout the course. For example, while persistence is clearly needed and implicit in many of the practical activities that occur during both physical and mental training, it is not taught explicitly through lectures, it is not directly tested (e.g., no grades for persistence are assigned), and it is not listed as the purpose of the exercises (even if encouraging persistence is a main goal of the activity). Nevertheless, many of the activities are designed to be grueling, with the goal of encouraging persistence in mind. Given this, it was clear that our coding could easily miss some relevant skills that were not explicitly discussed in the training and education materials.

Another challenge was that course materials assume that personnel come to the course with a certain but unstated level of the skills developed through on-the-job experience. That prerequisite experience is not explicitly articulated in the course materials, but it is nonetheless

[1] This is not intended as a criticism of the course curriculum materials. They contain a great deal of highly detailed curriculum and lesson plan information for the purposes of guiding the instructors who are administering the training. They were not, however, designed with our task in mind, and so we struggled to reliably extract the information we hoped to report in our prototype toolkits.

understood to be the case. Without knowledge of that prior experience, we could not properly identify the skill levels expected in the course.

Lastly, in many cases, the outlines of the course activities were not descriptive enough for us to cull concrete examples for illustrating how the skills were being applied in the training and education context, examples that were an important element of the materials we hoped to result from the project. As a result, it became abundantly clear that we needed more information than was in the course materials.

Based on the RAND coders' experiences, we came to two conclusions about the course coding methodology. First, review of course materials alone is not a sufficient and reliable means to determine the methods and extent through which courses seek to develop students' skills; course trainers' input would be critical to the methodology. Second, it is challenging, if not impossible, to assign a valid amount of learning and level of skill to each course, at least through course material review alone.

Turning to Course Instructors to Code Skill Levels and Amount of Learning

After determining the major challenges to coding at the lesson level of detail and based solely on course materials, we attempted to use our "amount of learning, level of skill" methodology, including skills definitions and anchors, with training and education SMEs (including both instructors and course developers) from several Army courses: Basic Combat Training, Advanced Leader Course, and Senior Leader Course (courses taken over the span of a combat arms career). Our objectives were to see whether the SMEs could efficiently, reliably, and credibly code the amount of learning and level of skill at the level of the entire course.

We sent the list of 16 skills, their definitions, and skill anchors to the instructors a week in advance of the meeting and asked them to think about the skills their course(s) most highly emphasized and through what means. Then, in person, we used a semistructured protocol to guide two-hour discussions with training and education SMEs of each course. As part of the discussions, we attempted to provide sufficient guidance to the SMEs so that they could determine the level of skill and amount of learning for each course (see form used in Appendix D). However, like the RAND coders, instructor and course developer SMEs could not align the courses with the level of skill and amount of learning anchors. For the level of skill anchor, instructors often found it difficult to provide an assessment of a skill that included consideration of performance of that skill outside the military training and education context and the course being considered. As a consequence, instructors tended to estimate high levels of skill for courses at every grade level. Another issue was that instructors, particularly of higher-level courses, often confounded the skills that courses teach with the experience that students bring to the course. Thus, for instance, instructors might provide examples intended to describe how the course develops decisionmaking but that actually show that personnel come to the course with experience in decisionmaking gained through military job experience.

For the amount of learning anchor, instructors found it difficult to agree on the percentage of the course that dealt with the many nontechnical skills, because those skills were not specifically singled out in lesson objectives. For example, a short lecture on teamwork might be followed by a large number of lessons in which teamwork was arguably important to a greater or lesser extent. How many of those follow-up lessons to "count" or not as time applying the skill became a subjective judgment with, not surprisingly, a wide range of outcomes.

Given the RAND coders' and instructors' challenging experiences in attempting to assign level of skill and amount of learning to courses, we decided to remove the rating scales from the final recommended methodology.

The Final Methodology Used to Define Training Content

Given that our SMEs (the instructors and course developers) were also not able to efficiently, reliably, and credibly code courses' amount of learning and level of skill, we sought an alternative methodology for capitalizing on the expertise of the training and education SMEs. The alternative would need to be efficient, reliable, and credible enough such that RAND could ultimately turn over the methodology to the services for expansion once we completed the pilot study.

The method we arrived at was an integrated one that used a variety of sources. We started by reviewing a course's program of instruction, lesson plans, and other available course materials in order to achieve a good understanding of the course. We then arranged in-person meetings with course instructors, developers, and other training and education SMEs.[2] We provided them with our list and definitions of nontechnical skills and then asked them to choose the top five to seven skills the course develops (see form used in Appendix D). We explained that the top five to seven was a rough guideline and flexible number and asked them to be sure to identify all skills they felt were significantly developed in the course, suggesting the range of five to seven as ideal. Sometimes the SMEs rank-ordered the top skills, even though we only asked them to identify which skills would be in the top group.

Tabulating the results, we then conducted a discussion with the SMEs, asking them to explain why they chose the top skills they did and how the course developed the selected skill, and to provide us with substantiating examples to share. The SMEs often built on others' descriptions and examples during the discussions. As well-prepared moderators, we clarified misperceptions about what a skill meant and asked probing follow-on questions when we felt the examples were not clear or convincing or did not appear to agree with written course materials or that, based on the review of the course material, a skill that seemed to be developed was not selected. We ultimately used these illustrative examples to create the descriptive examples that were included in the course overview materials described in Chapter Five. We also explored disagreements among SMEs, encouraging each person to answer the other and justify their points. When time allowed, we also asked SMEs to rate the level of skill and amount of learning for their top skill choices, then discussed those choices in similar way, asking "why" questions and asking for illustrative examples.[3] Finally, in cases in which SMEs did not arrive at a strong consensus on their first pass, we asked them to rate the top five to seven skills again at the end of the meeting, which always led to more agreement. The protocol for the meetings is contained in Appendix E.

After the meeting, we created the first draft of a course overview (see description of the contents in Chapter Five) by synthesizing the results of the review of course materials and what

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[2] Some of meetings ended up being conducted using email and phone, and in cases where SMEs were not available for a single meeting, we had to conduct multiple meetings. Points of contact (POCs) at the training schoolhouses identified key individuals with years of experience as instructors or course developers to serve as our SME experts.

[3] In that way, we were able to re-verify that the instructors had a high level of disagreement regarding the anchors.

occurred in the meeting. In most cases, judgments were required with regard to the bottom line, which skills were most highly developed, and how they were developed. For example, we had to decide whether to include a skill when SMEs disagreed during the meeting and were not able to reach a consensus. Did a lone dissenter make a compelling case for not including the skill? We also did not include skills for which, after reviewing meeting notes, we determined that the SMEs had not made convincing cases for their inclusion. For example, in one case, instructors ranked continuous learning as a top skill, but upon consulting meeting notes and course materials afterward, we concluded that while continuous learning was encouraged in the course, there was no training and education that substantially developed that skill.

Finally, once we had determined the top skills and wrote a course overview, we shared those outputs with selected participants in the original interview session—and, where possible, with other experts who were not at the interview—to validate the contents. When necessary, we made modifications to the overviews based on the feedback we received.

This "top skills" methodology demonstrates promise, because instructors often demonstrated high interrater agreement about which skills they selected to include in their final listings. Probing for examples provided useful information for the supporting materials.

CHAPTER FOUR

Phase II: Summarizing On-the-Job Experiences in the Military

In Phase II of the study, we focused exclusively on summarizing on-the-job experiences in selected combat arms occupations within the Army and Marine Corps relating to the skills discussed in Chapter Two. Like Phase I, that effort included two activities:

1. Developing a methodology to document the skills gained through on-the-job experiences
2. Using the results of that methodology to inform creation of prototype materials (i.e., the on-the-job experience summary tables, on-the-job experience vignettes, and accompanying instructions and questions and answers).

The purpose of this chapter is to address the first of these activities: the development of the methodology. The second activity is discussed in Chapter Five.

Our goal for Phase II was to produce summary tables and a set of illustrative stories for on-the-job experiences, akin to those that we developed to summarize the military courses. Elements of our Phase II design therefore built on and were informed by the successes and lessons learned during the Phase I effort, including exploring using rating scales and a "Top Skills" approach to determine which skills were most relevant in the military jobs we explored. We employed a mixed-methods approach, relying on both detailed narratives (focus groups and interviews) and quantifiable assessments (questionnaires and surveys).[1]

To identify on-the-job experiences, we conducted three main activities. First, we administered a questionnaire and collected stories illustrating nontechnical skills by conducting in-person focus groups and phone interviews. Second, we translated and refined verbal stories into written ones that could be easily understood by both civilians and military personnel and then solicited feedback from senior enlisted personnel to ensure the stories' authenticity and generalizability. Third, we administered surveys to military job incumbents from the focal MOSs, as well as a number of additional MOSs, to determine which skills were most critical in performing their duties and investigate the generalizability of our efforts.

[1] Although *questionnaire* and *survey* are often used interchangeably, in this study, they are distinct. *Questionnaire* refers to materials provided to participants in the focus group, whereas *survey* refers to a specific and modified version of the questionnaire.

Collecting Stories Illustrating On-the-Job Experiences of Nontechnical Skills

We collected stories through focus groups and follow-up interviews. Focus groups served as the primary mode of data collection because we were able to get immediate feedback from other participants in the room about whether they agreed that the stories generated by their peers were common and whether they had similar experiences. However, we also followed up with participants individually after the focus groups to collect additional stories. The focus group participants and focus group and interview methodologies are described below.

Focus Group Participants

As previously mentioned, we concentrated on collecting focus group data from enlisted personnel from pay grades E-4 to E-6 for the four focal MOSs: 11B and 19K for the Army and 03 and 08 for the Marine Corps. Individuals from other MOSs (e.g., 11C) also arrived at the focus group sessions, even though they were not part of the group we recruited. Instead of turning them away, we allowed them to participate. We also held some focus groups that included other pay grades (E-7 and E-8). For example, we asked E-8s to recount experiences earlier in their career. Given that the other MOSs (e.g., 11C) were somewhat similar, as explained to us by the participants, we proceeded with data collection and verified the relevance of these stories through subsequent analysis, which will be discussed later in this report. Thus, there were a total of 284 participants (161 Soldiers and 123 Marines), with 167 participants from the focal MOSs and grades (65 Soldiers and 102 Marines), who shared 415 stories.[2]

Table 4.1 shows the total number of participants involved in the focus groups, with the focal MOSs and pay grade groups highlighted in gray.[3] For the focal MOSs, we aimed to interview 14 individuals per cell (defined as a particular MOS and pay grade), which we estimated would, when combined, provide at least a few stories per pay grade group for each of the most critical skills. That is, if each participant produced two stories, we could have approximately 228 stories (4 MOSs × 3 grades × 19 skills). Although we did not achieve 14 participants per cell, we collected 415 stories across a number of skills and pay grades. We achieved this story count by (1) leveraging experiences from other, similar MOSs (e.g., 11C); (2) collecting additional stories from the 41 follow-up telephone interviews; and (3) asking focus group and interview participants to recall stories from earlier pay grades.

Focus Group Methodology

Four RAND project members conducted and recorded 74 focus groups (each consisting of two to five participants),[4] which yielded a total of 284 participants (161 Soldiers and 123 Marines). These focus groups ranged from one to two hours long and allowed us to collect detailed accounts about tasks required on the job in the combat arms professions that help develop certain nontechnical skills. The majority of our focus groups were held at three military training

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[2] Focus group participants came primarily from professional military education courses but, in the Marine Corps, also from a few operational units. POCs from the services assisted in recruiting the participants (that is, they asked people in units or training courses who were available to attend the focus groups). Those POCs included unit leaders, as well as training staff and instructors from a wide range of military organizations.

[3] *Pay grade* refers to the rank structure used in the military, where members of higher ranks are paid at a higher rate. In the case of enlisted personnel, pay grades are labeled E-1 to E-9, with E-1 representing the lowest rank and pay grade.

[4] One recorded focus group consisted of 13 participants.

Table 4.1
Number of Focus Group Participants, by Pay Grade, MOS, and Service

			E-4	E-5	E-6	E-7	E-8	Targeted Pay Grades Total	All Pay Grades Total
Army	11B	Infantryman	9	8	10	8	10	27	45
	11C	Indirect Fire Infantryman	4	14	8	0	0		26
	11Z	Infantry Senior Sergeant	0	0	0	0	22		22
	19K	Armor Crewman	2	30	6	0	0	38	38
	19D	Cavalry Scout	7	0	10	0	3		20
	19Z	Armor Senior Sergeant	0	0	0	0	10		10
Marine Corps	03	Infantry	14	24	17	19	0	55	74
	08	Artillery	17	16	14	2	0	47	49
Focal MOS total			42	78	47	29	10	167	206
All MOS total			53	92	65	29	45	210	284

NOTES: Gray cells indicate that the group was both a focal MOS and a targeted pay grade group. The targeted number of focus group participants per cell was 14.

and education locations (Camp Pendleton for the Marine Corps and Fort Benning and Fort Bliss for the Army). We focused on training and education course locations for three reasons. First, we knew there would be groups of personnel from the pay grades and MOSs of interest either attending these courses or teaching the courses and that this would allow us easy access to those groups. Second, we knew that those attending the courses would likely have on-the-job experience that would be typical of the MOS and that their instructors are typically highly experienced personnel and therefore would have extensive knowledge of and experience on the job. Third, students and instructors would be more likely to have discretionary time to participate in our study, whereas personnel working in units would be less likely to have such time. Although the majority of the locations for both the Army and Marine Corps were training and education locations, we were also able to obtain access to some personnel from Marine Corps units located at Camp Pendleton.

In all cases, POCs were responsible for recruiting our participants. We reached out to POCs at the various locations of interest (e.g., personnel overseeing the schoolhouses, unit leadership) and requested that they provide us with access to around five participants at a time for each MOS and pay grade focus group we held. Those POCs identified personnel who were at the required pay grade from the MOS of interest and then arranged for the meeting times and locations.

There were two main components to the structure of the focus groups: (1) completing the questionnaire and (2) participating in the discussion guided by the content of the questionnaire. The questionnaire included four sections (see Appendix F):

- Section 1: Background information
- Section 2: Review of nontechnical skills and identification of any potentially missing skills

- Section 3: Evaluation of the importance of nontechnical skills to accomplishing the mission in the particular occupational specialty
- Section 4: Experience demonstrating nontechnical skills on the job.

The focus group interviewer instructed the participants to complete one section at a time and asked participants to stop at the end of each section. This allowed the interviewer to answer any questions that arose while they were completing a given section. Sections 1 and 3 were completed without engaging the group in any discussion; however, immediately after participants completed Sections 2 and 4, the interviewer asked participants to share their answers to that section orally and probed for additional information to supplement the information written in their questionnaire responses. The information collected during the administration of the focus groups is detailed below, and grouped according to the information solicited in the questionnaire (which served as the road map for the focus group discussion).

Section 1: Background Information

After providing a brief project overview and administering the informed consent, the interviewer distributed the questionnaires and instructed participants to fill out Section 1, which included questions about participants' background characteristics. The most critical questions were pay grade (e.g., E-4) and MOS (e.g., 11B), as well as position title (e.g., team leader).

Once participants had completed this section, the interviewer paused to ask each participant their position title and summarize their key responsibilities. To ensure that individuals were sufficiently familiar with their position, the interviewer then confirmed that each person had been in their position for more than six months. If not, the interviewer prompted the participants to write in their prior position. At this point, the interviewer stressed the importance of referring to their current position (or the one they previously occupied if they had been in their role for less than six months) when completing the remaining portions of the questionnaire (e.g., the evaluations).

Section 2: Review of Nontechnical Skills and Identification of Any Potentially Missing Skills

Next, the interviewer oriented participants to the definitions of nontechnical skills, which required the participants to review the "List of Essential Nontechnical Skills and Competencies" (see Table 2.5). In an attempt to ensure that the list was comprehensive, the interviewer asked participants to consider whether there were any missing skills from the list. If any participants reported a missing skill, the interviewer and the respondents discussed the skill and whether a listed skill might encompass the proposed missing skill. Of the 285 participants, 56 individuals identified potentially missing skills. In most cases, the missing skills were either already named on the list or a synonym for a skill already included. The two notable exceptions were physical fitness (mentioned by five participants) and time management (mentioned by three participants).

Section 3: Evaluation of Nontechnical Skills

The third section included various evaluations of the extent to which nontechnical skills are used on the job. The evaluations focused on three factors: frequency of use on the job, importance to the job, and level of competence required. Evaluations consisted of two parts: Part A included rating all 19 nontechnical skills on Likert scales (e.g., for importance ratings, the scale ranged from 1 = "not at all important" to 5 = "extremely important"), and Part B involved selecting the top five and bottom five skills for each of the three factors. We opted to include

both evaluation formats (Likert criticality ratings and selection of top and bottom five) to ensure that we collected valuable data. Executing the first three sections took approximately 20 to 30 minutes. The remaining time was devoted to eliciting the stories.

Section 4: Experience Demonstrating Nontechnical Skills on the Job

The final section encompassed the bulk of the data collection—gathering specific and real examples illustrating the use of nontechnical skills on the job. To support these efforts, we relied on the questionnaire and discussion. Using an approach modeled after the critical incident technique (Flanagan, 1954), the interviewer first asked respondents to select a skill and think of a specific instance in their military work experience. Initially, we allowed participants to select whichever skill they wanted. However, because of limitations in the amount of time available during the focus groups and the number of incidents that could be collected, we later asked participants to select only skills that they indicated were in their "top five" (either frequent or important). The interviewer also instructed interviewees to think about incidents that occurred during their current job in an effort to restrict the incidents to those that had occurred more recently and thus avoid memory distortion.

To ensure that participants had time to collect their thoughts, we asked them to outline their story in writing.[5] Initial testing of the questionnaire with the first few focus groups suggested that providing additional structure to participants' responses would result in more focused and descriptive stories. Specifically, we revised the form to consist of three discrete segments (see Section 4 of Appendix F): (1) the situation or the context for what happened, (2) the behavior or action explaining how the participant used the skill, and (3) the outcome or the consequence of the behavior. After each story, we asked a number of follow-up questions to further clarify the story's details. For example, the questionnaire included questions about the participant's grade level and position title at the time of the incident, as well as how, when, and where the participant learned the skill. To help explore the generalizability of the incident, we asked how typical the situation was and how often situations like the one described occur. Each questionnaire included two "story sheets" (i.e., the story outline and follow-up story questions). Focus group discussions were recorded to ensure that we could capture their stories accurately.

We found that some interviewees encountered difficulty identifying specific events to describe. To address this concern, we offered various ways to reframe the instructions. For instance, if a participant had difficulty thinking about a time they had used decisionmaking and decisiveness because they "use it every day," the interviewer might ask them to "think about the tasks you completed this morning and whether you used any of the skills then."

Once participants had completed outlining a story, we asked them to verbally describe their incident. To ensure that we accurately captured these descriptions, we recorded all the focus groups. When the interviewees recounted stories, we asked questions that clarified any jargon that we did not understand during the account or that elicited additional specificity or critical details that appeared to be missing. During the discussion, we also asked the participants to indicate how much control they had over the situation, which allowed us to explore the importance of their role in the scenario. In addition, to encourage participants to think

[5] We encouraged participants to write bullet points (rather than complete sentences), because the intention of asking participants to write was to allow them time to collect their thoughts. However, participants often disregarded this instruction and wrote more detailed and comprehensive accounts than was intended. One possible remedy is to limit the space on the questionnaire available for writing.

about and articulate the situation in a slightly different way, we included a question that asked, "What would the outcome have been if you did *not* use this skill?"[6]

We collected as many stories as time permitted. While there were only two story sheets in the questionnaire, we carried additional packets in case there was an opportunity for more data collection. In some instances, participants shared only one story, and in others they shared many more. In addition to time, the number of stories a participant shared depended on the size of the focus group. For instance, one focus group consisted of two participants. In this instance, one of the participants provided four stories, and the other provided three.

Follow-Up Interview Methodology

At the conclusion of each focus group, the interviewer asked participants whether they would be willing to provide their contact information (email address, phone number, and name) so that we could document additional stories by phone. The interviewer stressed that this was optional and that the contact information would be kept confidential. The majority of the participants were willing to provide their contact information. Following up after the session provided useful information because, by this point, participants better understood what we were looking for and they had time to think of other stories that they wanted to share. This strategy also allowed us to particularly target those participants who we judged to have a high aptitude for producing the kinds of information we most needed.

We followed up individually with 41 of our focus group attendees to gather additional stories. Those asked to participate in the follow-up interviews received an email the night before assigning them an interviewer and providing them a shortened list of nontechnical skills to choose from.[7] On the phone, the interviewer went straight to Section 4 (examples from military work experience) of the focus group questionnaire. The interviewer asked the respondent to choose a skill from the list sent via email and then talk about an experience using that skill. The interviewer also verbally went through the questionnaire about the story the respondent provided (a section that is typically written down during the focus group). Similar to the focus groups, we recorded all follow-up interviews to ensure that we captured all the necessary information to develop illustrative stories.

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[6] The critical incident technique typically instructs participants to give examples of both effective and ineffective incidents. However, in this study we focused the majority of our discussion on examples of effective incidents. In this way, our methodology included some aspects of a critical incident technique but not others. We opted to use this modified approach because the critical incident technique is typically used for conducting a job analysis, whereas our purpose was entirely different. We were interested in using the critical incidents to craft vivid stories, which could serve as illustrations of successful application of particular skill on the job, not to conduct a job analysis. As a result, it was not relevant to ask for *examples* of ineffective use of the skills.

Nevertheless, we do believe that asking about what would have occurred if a skill was not used at all helped participants think about their example in a new way. In addition, because ineffective performance can be different from not using a skill at all, we recommend that future iterations of this methodology revise the question to include asking about ineffective performance as well. A revised question could be as follows: "What would the outcome have been if you did *not* use this skill or if the skill were used *ineffectively*?"

[7] In this list, we were also sure not to include skills that the participants had already provided stories for. A total of five RAND project members conducted these interviews.

Refining and Vetting Stories with Senior Enlisted Personnel

Transcription

To accurately capture all the information from the focus groups and follow-up interviews, we recorded and transcribed them**.** To alleviate potential concern, we informed the interviewees of our policy to delete the recordings as soon as we had transcribed the information and that we would not include any identifying information (i.e., names) in the transcripts. For the first few focus groups, we recorded the entire meeting and instructed those transcribing to transcribe the entire meeting. After realizing that, at best, the transcription took three hours for every one hour of recorded material, we decided to modify the transcription process so that only section four (experience using skills) was transcribed. For each focus group, we produced one transcript.

Translating Verbal Accounts into Polished Written Vignettes

The ultimate goals of this project are to provide civilian employers with clear examples of what Soldiers and Marines in the combat arms have done, and what skills they have developed in the process, and to help educate veterans on how to better describe their nontechnical skills to civilian employers. While the questionnaire responses and verbal accounts (as captured in the transcripts) contained a tremendous amount of information and captured the incidents in service members' own words, this information was typically difficult to interpret, for three primary reasons. First, there was a great deal of military parlance, which would be unfamiliar to civilians. Second, verbal accounts were often disjointed, such that important pieces of information were sprinkled throughout the description. Third, sometimes the skill a story was intended to illustrate was not appropriate (i.e., the story better illustrated a different skill). Relatedly, sometimes the story was just not a good example of the skill. To address these concerns, we conducted several steps to translate verbal accounts into polished written vignettes. Below we describe these steps.

Isolating Individual Stories

On average, there were six stories for each focus group/transcript. We first divided each transcript into individual documents, each of which contained one story. During this process, we also linked the questionnaire answers about the particular incident (e.g., the pay grade of the respondent when the incident took place) and any pertinent interviewee information (pay grade, job title, RAND-assigned interviewee identification number) to the particular story. In total, we transcribed 415 stories, or an average of more than 1.4 per participant.

Determining Which Stories Merited Translation into Written Narratives

To focus our efforts, we established three criteria for determining whether a verbal story merited translation into a short written account. It had to be typical, detailed, and publicly relatable. A story had to meet all three qualifications.

Typical means that the participant rated encountering that situation at least a few times a month (or more frequently) in the questionnaire and/or others in the focus group agreed the situation was common. For instance, one Marine provided a story about handling work stress, describing a time that he was training on clandestine beach landings and withdrawals near San Diego, California. For this particular exercise, this individual was on a jet ski while directing Marines, who were swimming in the water, on appropriate tactics. This individual noticed a great white shark, approximately 13 feet in size, casually cruising directly toward his fellow

Marines. In response, this individual did not display any signs of alarm and opted to say nothing to the Marines in the water in an effort to keep them calm. He slowly circled the Marines on the jet ski in order to create a barrier between them and the shark and steered the Marines toward shore. After five minutes of this steering and barrier providing, he was able to direct the Marines back to the beach safely. Though this skill demonstrates handling work stress extremely well, encountering great white sharks is not a scenario that most Marines would experience and therefore would not be a generalizable story.

Detailed refers to clear and descriptive features of an isolated incident. In some cases, even after repeated prompting from the focus group leader, some participants had trouble conveying the specifics of their story, did not follow the provided outline, or spoke in generalities (e.g., "we use critical thinking every day"). In all of these situations, the story could not "stand on its own." Additionally, for a few cases, the audio was compromised and/or it was difficult to understand the speaker, so the transcript was challenging to interpret. Where possible, elements from these "unusable" stand-alone incidents were incorporated to augment other stories. For instance, one individual conveyed background information on a training event that others referenced; however, this individual was unable to provide an isolated incident with the description, so we combined the description with another person's story. An example of the training event description is below:

> The goal of the JRTC [Joint Readiness Training Center] is to put your company in as many challenging and compromising scenarios as possible, so that they're ready for combat. The most typical scenario is the death of the company's chain of command, to see how the junior soldiers respond to an absence in leadership.

Lastly, the story needed to be *publicly relatable*. That is, the story needed to demonstrate how the skill was used in a way that others can relate to. For example, one Marine was on a temporary additional duty at a high school recruiting function when intoxicated parents approached him—they used profanity, spit on him, and tried to touch his uniform. He described how he behaved ethically: Instead of handling the situation himself, he notified law enforcement, and they immediately arrested the parents. By pursuing this course of action, he believed that he maintained the moral high ground and maintained good relations with the high school. While he gave us a detailed account, it could be difficult for people to understand why parents would be so aggressive toward him in the first place, so it is a difficult situation to relate to.

Constructing the Written Narratives

We translated each story that met the three criteria of typical, detailed, and publicly relatable into a written vignette. Specifically, we created a paragraph for each story that maintained a strong connection to the participants' own words but that followed a particular format; first the paragraph described the context of the situation, then how the Soldiers or Marines used the nontechnical skill, and finally the result of their actions. Although we primarily included information from the transcriptions, we also included data from each participant's corresponding questionnaire answers that outlined the components described above (situation, action, result) in cases where it provided additional, relevant information. Finally, if elements from other stories could be seamlessly included and would benefit the story, we included those elements as well.

As for the language of the written narrative, it was imperative that we constructed them in a way that enabled the information to be communicated clearly to the intended audience. This audience includes both civilian employers and military veterans. Therefore, we were careful to leave the stories in the tone and language of service members while also including explanations and translations for civilians. For instance, when a Marine spoke about a "HIMARS launcher," we would refer to the weapon system in the military vernacular as a "launcher" but also include a civilian-friendly definition in brackets (i.e. "High-Mobility Artillery Rocket System, or a large vehicle with a mounted rocket launcher"). The following is an example of a written narrative intended to illustrate the skill "adaptability and handling work stress":

> While in a small arms conflict with the enemy [e.g., fighting with small weapons, such as machine guns], I had to calmly reposition key weapon systems in order to have better fields of fire [areas that can be reached by weapon fire]. At the same time, I had to monitor radio traffic for enemy positions and maneuvering. Generally, while performing in combat, and even under time pressure, I would deal with the stress by breaking down each task into small parts, and performing each task one at a time. I analyzed the conditions [enemy behavior], determined if I needed to change positions of the weapon systems, formed a plan, and then executed the plan. In this case, I was able to maintain composure and execute the tasks assigned to me [overcome enemy forces] without any casualties [injuries or deaths].

The above account is typical, detailed, and publicly relatable. Additionally, a reader can clearly identify the situation ("small arms conflict"), action ("analyzed the conditions, determined if I needed to change positions of the weapon systems, formed a plan, and then executed the plan"), and result ("able to maintain composure and execute the tasks assigned to me").

Through this iterative process of reviewing each transcript and evaluating the story quality (on each of the three criteria), we narrowed the initial pool of 415 verbal stories from the transcripts down to 317 written narratives (146 for the Army and 171 for the Marine Corps). After creating these summaries, we combined all the summaries for each MOS by skill into large packets for further review by the SME panels.

Vetting the Written Narratives with Subject-Matter Experts

The primary goal of the SME vetting process was to ensure that we accurately captured the written narratives and that these stories represented typical situations. We also asked other questions to further evaluate the potential of each story. To accomplish these objectives, we met with six SME panels—four for the focal MOSs and two for selected additional MOSs.[8] Each panel consisted of between two and five E-7s (gunnery sergeants or sergeants first class) and spanned anywhere from three to four hours in duration. We conducted these panels in two waves: first for the focal MOSs and then for the additional MOSs.

[8] For the Army, E-7s were selected by a POC who was assigned to us by the Army. We do not know how the POC decided whom to invite as E-7s. We do know that for each MOS, the SMEs meetings were arranged at single base locations, and all participants worked those bases. Marine Corps SMEs were requested through a Marine Corps POC who invited people who represented a range of perspectives in the 06 career field. For the non–combat arms MOSs, Army SME meetings were held at Fort Lee, and for the Marine Corps, Camp Pendleton. For the combat arms MOSs, Army SME meetings were held at Fort Benning, and Marine Corps SME meetings were held at Camp Pendleton.

Expert Panels for the Focal MOSs

Ensuring the Accuracy of Stories from Focal MOSs

The primary goal of the focal MOS SME panels was to provide an initial screening by senior individuals within a particular MOS. The process of gaining feedback from SMEs on each story's accuracy was absolutely critical, because RAND project members (mostly civilians) transcribed the verbal accounts and constructed written vignettes. As such, there was the possibility that the story could be unintentionally garbled or misunderstood because of the use of unfamiliar military jargon.

To facilitate the SME review, the written narratives were organized by skill and MOS. For the four focal MOSs (Army Infantry [11B], Army Armor [19K], Marine Infantry [03], and Marine Artillery [08]), each SME panel examined written vignettes only from his or her MOS. For example, the 11B SME panel examined only 11B stories. For each panel, we explained the purpose of the research and provided instructions for providing feedback on the written vignettes. We distributed packets[9] that included the list of stories paired with four evaluative questions asking whether the specific story made sense, was typical of their MOS, and needed edits so that it would be typical of their MOS, as well as at which pay grade level(s) the specific story would most likely occur (see Figure 4.1).

Typically, we would ask SMEs to read and evaluate all the vignettes associated with a single skill (e.g., approximately five stories), and then we would stop to discuss as a group while making any necessary revisions. To ensure effective communication, we projected the same document that the SMEs had in their packets onto a larger screen at the front of the room. When SMEs provided edits for particular story, we made real-time edits on the projector so they could watch the changes and alert us if any additional modifications were necessary. During the discussion, we often reviewed minor modifications to indicate how the story could be rephrased to apply to other grade levels (for example, how a story illustrating decisionmaking could be reframed to apply to a squad leader instead of a platoon leader).

Exploring the Applicability of Stories to Other Combat Arms MOSs

A secondary goal of the focal MOS SME panel was to assess the relevance of stories to other combat arms MOSs that are likely similar to the focal MOSs. For example, as indicated in

Figure 4.1
Sample Layout of Army SME Panel Packet—Examining Accuracy

	[Written Account]	**Make sense?** Yes/No **Typical?** Yes/No **Edits needed?** Yes/No	**Which level(s)?** PV1 (E-1) PV2 (E-2) PFC (E-3) CPL/SPC (E-4) SGT (E-5) SSG (E-6) SFC (E-7) MSG/1SG (E-8)

RAND *RR1919-4.1*

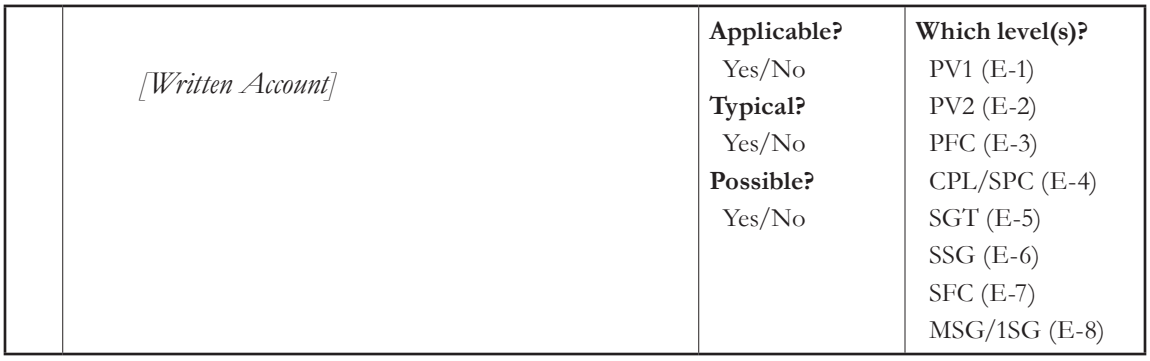
[9] We printed the packets on paper sized 11.69" × 16.54" to allow more room for visible text. This helped participants to easily review and compare multiple vignettes at the same time without having to flip back and forth across multiple pages.

Table 4.2, during our focus groups we interviewed individuals from two nonfocal combat arms MOSs (11C and 19D). Rather than throwing their stories away, we asked the SME panels to assess whether these stories were applicable to the 11B and 19K MOSs, respectively. The procedure for assessing applicability was the same as for assessing accuracy, except that we asked slightly different evaluative questions. Instead of asking the SMEs about the accuracy of the critical incidents, we asked them whether each story was applicable to their MOS (see Figure 4.2).

Table 4.2
Numbers of SMEs and Stories Vetted in the Focal MOS SME Panels

Service from Which the Stories Came	MOS from Which the Stories Came	Form That Was Used to Assess the Stories	Number of SMEs Assessing the Stories	Number of Stories Discussed by SMEs	Number Approved by the SMEs
Army	11B	Accuracy	3	43	32
	11C and 11Z	Applicability	3	33	18
	19K	Accuracy	3	32	26
	19D and 19Z	Applicability	3	38	22
Marine Corps	0311, 0321, and 0369	Accuracy	5	77	69
	0313, 0331, 0341, and 0372	Applicability	1	19	18
	0811	Accuracy	2	45	40
	0814, 0844, and 0848	Applicability	2	30	27
				Total	252

Figure 4.2
Sample Layout of Army SME Panel Packet—Examining Applicability



RAND *RR1919-4.2*

If the story was applicable, we included it as-is in the focal MOS list. If the story was not applicable, we asked the SMEs whether there was a way we could edit the story to make it applicable. If there was, then we made the minor modifications and included it. If there was not, then we removed the story from further consideration (see Table 4.2 for more details). For instance, the following is a story from 19D and judged to be applicable to 19K:

> My team conducted most of our missions on foot in an area flush with IEDs [improvised explosive devices]. My platoon leader and I formed several strategies to keep our Soldiers safe. First, we located a mine sweeper to detect metal underground. Then we instructed our Soldiers to walk single-file instead of in the usual "V" formation to lessen the chances that a Soldier would trip an IED. During the day, we used baby powder to mark safe pathways, because the enemy wouldn't know what it was for and it blows away after a day or so. At night, we used glow sticks inside water bottles to mark safe pathways. Our methods were ultimately effective. My platoon was the only one with zero amputees, while my battalion had upward of 30.

Overall, the primary SME panels provided valuable feedback on the accuracy and typicality of the critical incidents and helped us to further refine the stories with potential and delete those that were not accurate and/or typical. Of the 317 written narratives, 252 stories passed SME screening. See Table 4.2 for a breakdown of how many were contributed by MOS.

Two interesting discussion points that emerged throughout these SME panels were each story's level of specificity and shelf life. *Level of specificity* refers to the idea that some stories are general to the military and transcend job roles, while others are specific to the MOS. Additionally, some stories involved combat. The SMEs noted which of those experiences were no longer typical.

Expert Panels for Additional Non–Combat Arms MOSs

Exploring the Applicability of Stories from the Focal Combat Arms MOSs to the Additional Non–Combat Arms MOSs

Our discussions with the SME panels described above were designed to explore the applicability of stories from one combat arms MOS to another combat arms MOS; however, it is worth noting that the MOSs explored above are all highly similar. In this section, we discuss our efforts to explore the applicability of the combat arms stories to a couple of non–combat arms MOSs, which might be expected to be different from the combat arms occupations in meaningful ways.

To explore applicability to these non–combat arms MOSs, we met with E-7s from two additional MOSs (88M Motor Transport in the Army and 06 Communications in the Marine Corps), who provided feedback on the applicability of the service-specific stories to their MOS. That is, Army 88M SMEs reviewed 11B and 19K stories, and Marine Corps 06 SMEs reviewed the 03 stories.[10] We selected these two MOSs (88M and 06) because we wanted one MOS (88M Motor Transport) that might be more similar to the focal combat arms MOSs and another (06 Communications) that might be more dissimilar to the focal combat arms MOSs. While this assumption proved somewhat true with Motor Transport, we learned that there is tremendous variation within the 06 Communications specialty. Some 06s were attached to

[10] Unfortunately, due to scheduling difficulties, we were unable to have the 08 stories vetted prior to the 06 SME panel, and the 06 SMEs were unable to meet again.

ground combat units, while others were located at headquarters. As a result, some stories could generalize to some 06 personnel but not others.

We followed the same applicability procedure as described above, except that the stories included in the additional MOS SME discussions included only those that had already been screened and revised by the combat arms MOS SME panels. Figure 4.3 presents two examples of the feedback. The figure includes two 11B stories, the number of expert panel members that answered yes or no to the three questions (second column) for each story, and, if applicable, the recommendation of the panel members as to which grades a story would apply (the third column).

As indicated by the first story in Figure 4.3, by changing a few key words (e.g., *tank*, *track*), we were able to make the 11B story applicable to the 88M Motor Transport MOS. Figure 4.3 also demonstrates the collection of the SMEs' quantitative input. In this example, the two SMEs both indicated that the story was applicable, that there should be edits, and that it was typical. As is evident from the second example in Figure 4.3, though, this story was deemed too different to "salvage" and determined to not generalize to that MOS (indicated by the crossed-out text in the figure).

Table 4.3 summarizes some details of the larger process, including how many initial stories were assessed by both the 88M and 06 panels.

In this preliminary examination of generalizability, the main finding is that many stories (over 75 percent) generalize to the other MOSs we explored. By *generalize*, we mean that a story can be used "as is" (typically, this means a story is about the military in general and not MOS-specific) or that the story can be modified to apply to a given MOS. Modifications may

Figure 4.3
Example Feedback 88M Motor Transport SME Panel on 11B Stories

Every Monday we do command maintenance in the motor pool, which involves conducting preventative maintenance checks and services. Each crew goes to their individual ~~tank~~ truck and performs maintenance to identify faults, check the ~~track tension~~ fluids, check the digital systems, hang new parts, and overall, get the status for the readiness of ~~the tank~~ the truck that day. Supervising the crews is important for ensuring that the time given is being used properly. I go around and make sure everyone knows what their priorities are for checking the tank and that everyone is doing their job.	**Applicable?** Yes - 2/ No **Typical?** Yes - 2/ No **Possible Edits?** Yes- 2 / No	**Which level(s)?** PV (E-1) PFC (E-2) LCPL (E-3) CPL (E-4) SGT (E-5) SSGT (E-6) - 1 GYSGT (E-7) - 2 1SGT (E-8)
~~During a training exercise, my platoon had to conduct a raid on a village so we had to clear multiple buildings. As my team was clearing a building, my team leader was notionally shot and I had to assume command, which involved decisions such as where should my soldiers should set up security, should we stack on the door, should wait for another team to come through, or, if not, how should we flow into the building (i.e., go upstairs or through the hallway first?). Ultimately, I decided to wait for an additional team before clearly the building. Nobody else team died notionally and the mission was completed.~~	**Applicable?** **Yes / No - 2** **Possible Edits?** **Yes - 2 / No** **Typical?** **Yes / No - 2**	**Which level(s)?** PV (E-1) PFC (E-2) LCPL (E-3) CPL (E-4) SGT (E-5) SSGT (E-6) GYSGT (E-7) 1SGT (E-8)

Table 4.3
Numbers of SMEs and Stories Vetted in the Additional MOS SME Panels

Service	MOS	Number of SMEs	MOS of Assessors	Initial Stories	Generalizable Stories
Army	88M	2	11B	50	40
			19K	48	41
Marine Corps	06	5	03	69	53
				Total	134

be relatively minor (e.g., changing the word *patrol* to *convoy*; changing the specific training event) or more substantial (deleting entire sections). This finding held for both the 88Ms and the 06s. Nevertheless, as noted above, we also learned that there is wide variety of experiences within the 06 MOS. This means that, even for tasks that generalize to another MOS, there is no guarantee that someone in that MOS will have had a similar experience. In addition, results showed that some stories did not generalize. Nevertheless, our SMEs noted that the idea and structure (situation, action, and result), even for those examples that did not generalize, still helped to spark ideas for how Soldiers and Marines could create stories specific to their MOS.

Overall, these results regarding generalizability are promising. However, we offer strong caution that only a few individuals in two additional MOSs reviewed these stories. Ideally, we would recommend more iterations and more assessors. Nevertheless, this provides a valuable starting point and a cursory indication of how generalizable the stories demonstrating essential nontechnical skills from the combat arms are to non–combat arms MOSs.

Administering Surveys to Military Job Incumbents

Survey Description

The primary purpose of the survey was to collect more evaluations to determine the nontechnical skills most critical for conducting the mission in a given MOS.[11] Guided by this purpose, we shortened the questionnaire that was administered to focus group participants considerably. Key differences between the questionnaire and survey included (1) deleting the skill level questions; (2) adding a gender demographic question; (3) dropping the bottom five most frequent and important skills questions; and (4) excluding descriptions of prior skill experiences.

We decided to drop the skill level questions (see Figure 4.4) for multiple reasons. Although quantifying the level of skill required for a particular job is attractive because it would help establish a useful metric, a critical question is "What is the reference point?" To make results generalizable, the reference would need to be *relative to all jobs* (and not just those in a specific grade and MOS). This, however, is particularly challenging to conceptualize. Focus group participants consistently expressed confusion and frustration when attempting to answer this item and questioned the value of its results; many said that they had limited knowledge of jobs beyond their own and outside the military. This is in line with previous research, which

[11] Initially, we hoped to include the stories in the surveys as well, to gain more independent feedback; however, given the timeline, this was not feasible.

Figure 4.4
Skill Level Focus Group Questions

	None	Basic Understanding (only the most basic knowledge of techniques/ concepts; just beginning to learn and practice the basics)	Novice (some skill at performing well, but still would benefit from help/ advice to improve; working towards mastering the basics)	Intermediate (performing fairly well independently; but could still benefit from help/ advice occasionally; has mastered most of the basics)	Advanced (no assistance needed to perform well; coaches others; considered "a person to ask")	Expert (can provide superior guidance, troubleshoot and answer questions. recognized as the authority and the "go to" person)	Top 5 Skills (cheel)	Bottom 5 Skills (check)
a. Decision-making/decisiveness	NA	1	2	3	4	5		
b. Critical thinking	NA	1	2	3	4	5		
c. Continuous learning	NA	1	2	3	4	5		
d. Training others	NA	1	2	3	4	5		
e. Teamwork & team-building	NA	1	2	3	4	5		
f. Interpersonal skills	NA	1	2	3	4	5		
g. Oral communication	NA	1	2	3	4	5		
h. Written communication	NA	1	2	3	4	5		
i. Operating safely	NA	1	2	3	4	5		
j. Handling work stress	NA	1	2	3	4	5		

RAND *RR1919-4.4*

suggests that importance and frequency scales tend to have a higher reliability than other job analysis scales (Dierdorff and Wilson, 2003).

At the time of our study, personnel in the combat arms occupations were all male.[12] However, because we were also administering the surveys to MOSs that had not historically been closed to women (such as military police), we added an item to capture gender. We then removed the question asking participants to identify the five least frequent and least important skills (shown in Part B of the original questionnaire), because our emphasis was on finding those skills that are most critical, and this would help to shorten the questionnaire. Finally, we excluded Section 4 ("Experience in Using Skills") because we were no longer collecting stories. Thus, the remainder of the survey included the same first three sections as the questionnaire; (1) demographic questions, (2) missing skills, and (3) skill evaluation scales for frequency and importance. See Appendix G for the complete survey. Generally, the survey took 10–15 minutes to complete as opposed to the questionnaire, which took approximately 30–45 minutes (parts of which were also followed by focus group discussion).

Survey Participants

To obtain as high a response rate as possible, all surveys were administered by someone in person and conducted via paper and pencil. Surveys were either administered by RAND project team members or by the military personnel located at the installation where the survey was conducted. Specifically, when administered by military personnel, we sent hard copies of the surveys (as well as a protocol, consent forms, and skill definition sheets) to POCs at military installations for completion, along with mailing materials to allow the POC to send the surveys back to us.

We targeted our survey data collection efforts at locations that met three criteria: (1) We looked for locations where a large number of personnel from the MOSs of interest would be located; (2) we looked for locations where multiple MOSs of interest would be represented; and (3) we looked for locations that would have personnel with extensive and fairly typical on-the-job experiences for a given MOS (i.e., their experience would likely be representative of the MOS). However, ultimately we were limited to only those personnel whom our POCs could gain access to on our behalf. TVPO staff, unit leaders, and training staff and instructors from a wide range of military organizations served as our POCs and assisted in recruiting participants. Survey participants came from three main sources: professional military education courses, units (for the Marine Corps only), and those participating in Transition Assistance Programs (TAP) programs (Army only).

For the Marine Corps, we were assigned a POC at Camp Pendleton, who connected us with unit-level POCs, who then provided us with survey participants from various units at the base. In the Army, however, POCs in units were unable to offer participants on a timeline that was consistent with our project, so we instead turned to training locations (where multiple individuals would be completing formal training) and TAP program locations (where multiple individuals would be preparing to transition out of military service). Members of the classes that were ongoing and individuals participating in TAP programs at the time of the

[12] For historical context, our study took place at a time when the services were preparing to allow women to serve in combat arms occupations and just beginning to send women through the combat arms training pipelines. However, in years past, women had been barred from serving in combat roles. As a result, at the time of our data collection, the population of job incumbents in the combat arms occupations was still nearly entirely male.

data collection were invited to participate by various POCs from those locations. The training locations we targeted were Fort Lee, Fort Bliss, Fort Hood, Fort Leonard Wood, and Fort Benning, and the TAP program locations we targeted were Schofield Barracks (in Hawaii), Fort Riley, Fort Stewart, and Fort Carson. Although we asked our POCs to invite only members of the MOSs we were interested in, restricting participation to only those MOSs was difficult in many cases. Units, training, and TAP locations often are not restricted to just one MOS. As a result, when surveys were administered to groups of participants, other MOSs sometimes slipped in unnoticed. In addition, some POCs did not attempt to screen out other MOSs in cases where it was simple and quick to administer the survey to personnel already gathered in a room but taking time to separate out MOSs would create an additional burden. As a result, some of the survey responses were from MOSs that we were not targeting in our study. Responses from those other MOSs were not analyzed.

For purposes of the survey analysis, we combined the additional surveys collected from these locations with those that we obtained from the focus group participants. In Table 4.4, we report the final sample sizes for each MOS that we analyzed. In total, we collected 1,233 responses; 743 of these were from the MOSs of interest.

Table 4.4
Number of Survey Participants Included in Analyses—Top Five Skills

			E-4	E-5	E-6	All Pay Grades Total
Army	11B	Infantryman	107	41	23	171
	19K	Armor Crewman	20	35	8[a]	55
	88M	Motor Transport	20	65	20	105
	31B	Military Police	54	41	57	152
	92Y	Unit Supply	13[a]	22	33	55
Marine Corps	03	Infantry	43	49	22	114
	08	Artillery	47	26	18	91
All MOS total			291	279	173	743

[a] We did not analyze cells with fewer than 15 individuals as sample sizes would be too small to draw meaningful conclusions. These cells are not included in the totals.

CHAPTER FIVE

The Resulting Prototype Toolkits

We developed prototype materials from the data collected through interviews, focus groups, and surveys during Phase I and Phase II that communicate for civilian employers and veterans the skills gained from military training, education, and on-the-job experiences. As described in the previous chapters, information collected during Phase I examined skills gained through formal military courses, and information collected during Phase II examined skills gained through on-the-job experiences. These prototype materials formed the basis for a pair of toolkits that each include the following:

- an introductory letter to the respective civilian employer and veteran audiences from our TVPO sponsor
- an introduction and a guide to using the toolkit
- a set of course summary tables (one for Army courses and one for Marine Corps courses)
- a set of course overviews (one for each Army and Marine Corps course covered)
- a set of on-the-job-experience summary tables (one for Army on-the-job experiences and one for Marine Corps on-the-job experiences)
- a set of on-the-job experience vignettes (for each skill or skill cluster examined).

The summary tables summarize the top skills emphasized in each course and in the on-the-job experiences, providing veterans and employers with a quick and high-level understanding of which skills are emphasized the most. The course overviews and on-the-job experience vignettes provide more depth to back up the tables, showing how the listed skills are acquired through various courses and on-the-job activities. The purpose of the tables, course overviews, and vignettes is to help make the military world accessible and understandable to civilian employers and to help veterans explain to civilian employers in nonmilitary terms the skills in which they may have formal military training and education, practical experience, or both. The letters, introduction to the materials, and guide to using the toolkit are intended to guide veterans' and employers' use of the tables, course overviews, and experience vignettes.

The remainder of this chapter describes each of these materials in further detail. The full bibliographic information for the two toolkits is as follows:

- *What Veterans Bring to Civilian Workplaces: A Prototype Toolkit for Helping Private-Sector Employers Understand the Nontechnical Skills Developed in the Military*, by Chaitra M. Hardison, Tracy C. McCausland, Michael G. Shanley, Anna Rosefsky Saavedra, Angela Clague, James C. Crowley, Jaclyn Martin, Jonathan P. Wong, and Paul S. Steinberg, Santa Monica, Calif.: RAND Corporation, TL-160-1-OSD, 2017, available at www.rand.org/t/TL160-1

- *What Veterans Bring to Civilian Workplaces: A Prototype Toolkit for Helping Veterans Communicate to Private-Sector Employers About the Nontechnical Skills Developed in the Military*, by Tracy C. McCausland, Michael G. Shanley, Chaitra M. Hardison, Anna Rosefsky Saavedra, James C. Crowley, Jonathan P. Wong, and Paul S. Steinberg, Santa Monica, Calif.: RAND Corporation, TL-160/1-1-OSD, 2017, available at www.rand.org/t/TL160z1-1.

Introductory Letters to Civilian Employer and Veteran Audiences

Letters to civilian employer and veteran audiences introduce the toolkit materials. The letters begin by highlighting the value of veterans' formal training and education in nontechnical skills as well as their on-the-job experiences. They next introduce the reason for creating the toolkit materials: Realizing, understanding, and communicating about skills in which veterans have experience or formal training and education is difficult for both veterans and employers. The letters then explain that toolkit materials "translate" the skills addressed through military training, education, and on-the-job experiences into terms that will resonate with civilian employers. Finally, the letters summarize what is included in the materials—skills and their definitions, summary tables, course overviews, on-the-job experience vignettes, and instruction and general recommendations about how civilian employers and veterans can use the materials.

Introduction and Guide to Using the Toolkit

The introduction contains questions and answers that address a range of topics, including the need for the toolkit materials, what the materials do and do not address, how the materials were developed, the pilot nature of the effort, and how to understand and use the summary tables, course overviews, and on-the-job experience vignettes. Specifically, the questions are as follows:

- Using the Summary Tables, Course Overviews, and Experience Vignettes
  - What is the goal of these materials?
  - How should civilian employers use this toolkit to review veterans' résumés and conduct interviews with veterans?
  - How was this toolkit developed?
- Scope of This Toolkit
  - Which nontechnical skills does this toolkit cover?
- Nontechnical Skill Descriptions
  - Are the skills discussed in this toolkit a comprehensive list of the skills veterans possess?
  - Have veterans taken courses other than those described in this toolkit? *(employer version only)*
  - Why do we include both military courses and on-the-job experiences in this packet?
  - Where can veterans learn about *(or where can employers learn to communicate about)* veterans' technical skills, as opposed to nontechnical skills?
  - Can the information in this toolkit be generalized to non–combat arms personnel?

- Some Background on Military Terms and Organization *(employer version only)*
  - What are the Army and Marine Corps enlisted ranks and titles, and what do they mean?
  - What are squads, platoons, and companies?
  - What are the combat arms occupations and the combat arms branches?
- Course Summary Tables
  - Are the skills marked in the summary tables cumulative?
  - Why do the skills appear to change as someone's rank increases?
  - In the course summary tables, why do the skills addressed for Army personnel differ from the skills addressed for similarly ranked Marine Corps personnel?
  - Does every veteran have the skills checked off in the tables?
- Course Descriptions
  - Are the course overviews a comprehensive description of the courses considered?
  - Why are the examples included in the course overviews important?
- On-the Job Experience Summary Tables
  - Why are there fewer ranks (columns) listed in the experience tables than in the course tables?
  - Why are there more skills listed in the experience tables than in the course tables?
  - What are the meanings of the various shapes in the experience tables?
  - How were the tiers formed and the skills ordered in the experience tables?
  - Does every veteran have the skills listed in the tables as top most critical for the job?
- On-the-Job Experience Vignettes
  - Why are the examples included in the on-the-job experience vignettes important?
  - What should I be aware of when reading these stories?

In addition, a technical appendix addresses the following two questions:

- How was this toolkit developed?
- What are the limitations of this toolkit?

Materials Capturing Skills Gained Through Formal Military Training

Course Summary Tables

The course summary tables (Tables 5.1 and 5.2) show the breadth of the valued skills addressed through selected Army and Marine Corps courses. One table summarizes skills developed through selected Army courses, including two courses that all Army personnel enroll in and two in which a large proportion of personnel in combat arms occupations enroll. The other table summarizes skills developed through four selected Marine Corps courses in which most Marines enroll. The columns represent courses, organized from left to right in the sequence taken (so skills developed are cumulative reading from left to right). Under each course title, we indicate the pay grades that most commonly enroll in each course. The rows represent skills. A diamond in the column indicates that a given skill is among the top skills developed in a given course.

The skills listed in the summary tables are cumulative, so that if a Soldier enrolled in the Army's Basic Leader course as an E-5, he or she would also have completed the relevant Basic

Table 5.1
Summary of the Top Nontechnical Skills Addressed in Army Courses

Skill Addressed	Basic Combat Training *(entry-level personnel: E-1–E-2)*[a]	Basic Leader Course *(mid-level personnel: E-4–E-5)*[a]	Advanced Leader Course *(mid- to senior-level personnel: E-5–E-6)*[b]	Senior Leader Course *(senior-level personnel: E-6–E-7)*[b]
Handling work stress	✦			
Being dependable and reliable	✦			
Persistence	✦			
Conscientiousness and attention to detail	✦			
Interpersonal skills	✦	✦		
Teamwork and team-building	✦	✦	✦	✦
Oral communication		✦	✦	✦
Managing and supervising the work of others		✦	✦	✦
Decisionmaking/decisiveness		✦		✦
Training others		✦		✦
Leading, motivating, and inspiring others to accomplish organizational goals		✦		
Critical thinking				✦
Project planning				✦

NOTES: The absence of a ✦ does not indicate that instruction in the skill is absent from the course, only that it was not among the "top skills" most emphasized in the course according to the SMEs interviewed. Table information describes the courses during the 2014 to 2015 time frame during which this study was conducted. Courses before or after that period may differ.

[a] These courses are taken by all Army personnel.

[b] All combat arms personnel take a version of this course; however, some of the content and emphasis differs by job grouping (i.e., by occupational branch) and sometimes by job. Here, we report only those skills that instructors have indicated are common to all versions of the course for Armor and Infantry jobs.

Combat Training course as an E-1, E-2, or E-3, and so would have received formal training and education in the valued skills marked under both courses. The tables are organized to show that the courses for lower-ranked personnel focus on developing skills such as handling work stress and being dependable, whereas courses for higher ranks focus more on leadership, team-building, and supervising.

Course Overviews

The course overviews use concrete examples of how military courses develop skills that are transferable to the civilian workplace in terms that civilian employers understand. The summaries are each structured as follows:

- **Bottom line:** The key takeaway for each course in terms of the top valued nontechnical skills developed.

Table 5.2
Summary of the Top Nontechnical Skills Addressed in Marine Corps Courses

Skill Addressed	Recruit Training *(entry-level personnel E-1–E-2)*[a]	Corporals Course *(mid-level personnel: E-4)*[b]	Sergeants Course *(mid- to senior-level personnel: E-5)*[b]	Career Course *(senior-level personnel: E-6)*[b]	Advanced Course *(senior-level personnel: E-7)*[b]
Handling work stress	See note a				
Being dependable and reliable	See note a				
Persistence	See note a				
Interpersonal skills	See note a				
Conscientiousness and attention to detail	See note a				
Teamwork and team-building		✦			
Critical thinking		✦	✦	✦	
Leading, motivating, and inspiring others to accomplish organizational goals		✦	✦	✦	
Oral communication			✦	✦	
Written communication			✦	✦	
Decisionmaking/decisiveness			✦	✦	✦
Training others			✦		✦

NOTES: The absence of a ✦ does not indicate that instruction in the skill is absent from the course, only that it was not among the "top skills" most emphasized in the course according to the SMEs interviewed. Table information describes the courses during the 2014 to 2015 time frame during which this study was conducted. Courses before or after that period may differ.

[a] Recruit Training materials were not available in our pilot study. We anticipate that a review of those materials would produce results similar to those found in the Army. However, this premise has not yet been confirmed.

[b] These courses are completed by most, but not all, Marines.

- **Course description:** A concise description of the course that addresses audience, time frame, and main learning goals.
- **Top skills emphasized:** Explanations and examples of each of the top skills emphasized in the course.
- **Other skills and competencies taught:** A brief discussion of some of the other nontechnical skills addressed in the course, including explanations and examples (if applicable).
- **Key activity:** A discussion of a key course activity, usually a culminating or "capstone" activity, and how that activity develops many of the top skills developed in the course.

The examples in the course overviews are specifically crafted to eliminate military jargon, translating for civilian employers the unfamiliar notion of military work into one that seems more similar to civilian work. Although the examples come from the combat arms branches only, people from all services and all jobs can consult the course overviews to see a model of how to communicate with prospective employers and explain the value of the training and education they have received in terms employers relate to. Employers can consult the course

overviews to get a better sense for how the military trains its people and inculcates many of the same skills desired and developed in civilian environments.

For an example of how the course overviews build on the information included in the table summaries, see Figure 5.1. This figure illustrates how the Army's Basic Leader Course (BLC) course overview uses concrete, nonmilitary language to explain how the course addresses each of the seven skills that are marked in the BLC column of the summary table, using the skill "managing and supervising the work of others" as an example. A complete course summary for the BLC can be found in Appendix H.

Materials Capturing Skills Gained Through On-the-Job Experience

On-the-Job Experience Summary Tables

To differentiate which skills gained through on-the-job-experience are most critical, we focused first on the surveys, in which respondents were asked to select the top five most frequently used skills on the job and the top five most important skills. Following that, we examined the Likert criticality ratings of frequency and importance. We then combined the entire set of results (the top five results and the Likert criticality rating results) in a single simplified table designed to summarize the overall findings for the Army and Marine Corps.

Top Five Percentages

We first calculated the percentage of people selecting each skill in their top five for importance and frequency separately (see Appendix J). We then combined the results for importance and frequency by averaging the resulting percentages (i.e., [percentage selecting the skill as top 5 most important + percentage selecting the skill as top five most frequent] / 2) and refer to that average as the *top 5 criticality percentage*. Top five criticality percentages for the focal Army and Marine Corps combat arms MOSs are shown in Tables 5.3 and 5.4. The tables list the skills in order of average criticality across the MOSs and ranks shown.

As shown in Tables 5.3 and 5.4, there is a large degree of agreement across MOSs and pay grades both within and between the two services regarding the rank order of skill criticality. For instance, results for both services show that "decisionmaking/decisiveness," "being dependable and reliable," "training others," and "critical thinking" are at the top of the list and that "behaving ethically," "interpersonal skills," "project planning," "persistence," and "written communication" are at the bottom of the list. Additionally, the top ten nontechnical skills for both Soldiers and Marines are the same. Nevertheless, regardless of the rank ordering, it is also of note that even the skills at the bottom of the list were still selected in the top five by some participants.

Table 5.5 shows results for the additional Army MOSs we explored, excluding pay-grade groups for which we had fewer than 14 participants. The table again lists the skills in order of average criticality across the MOSs and ranks shown. When we examined the top 5 criticality percentages for these additional MOS grade groups, we again found very similar patterns for nearly all of the MOSs and grades, and those patterns were similar to those observed in the focal MOSs.

Figure 5.1
Illustration of the Relationship Between the Content in the Course Summary Table and the Course Overview

Skill Addressed	Basic Combat Training *(entry-level personnel: E-1–E-2)*[a]	Basic Leader Course *(mid-level personnel: E-4–E-5)*[a]	Advanced Leader Course *(mid- to senior-level personnel: E-5–E-6)*[b]	Senior Leader Course *(senior-level personnel: E-6–E-7)*[b]
Handling work stress	✦			
Being dependable and reliable	✦			
Persistence	✦			
Conscientiousness and attention to detail	✦			
Interpersonal skills	✦	✦		
Teamwork and team-building	✦	✦	✦	✦
Oral communication		✦	✦	✦
Managing and supervising the work of others		✦	✦	✦
Decisionmaking/decisiveness		✦		✦
Training others		✦		✦
Leading, motivating, and inspiring others to accomplish organizational goals		✦		
Critical thinking				✦
Project planning				✦

Army Basic Leader Course

Bottom Line

The Basic Leader Course (BLC) is the first course of study in the Army noncommissioned officer (NCO) Education System. BLC provides a formal complement to students' on-the-job experience, providing structured development of the ability to lead and supervise a small group of workers as a first-line supervisor. . . .

. . .

Course Description

The BLC is a 22-day course that provides basic leadership training to support the transition from the follower/worker role to that of a junior NCO, who is a small-group leader/first line supervisor. . . .

. . .

Key Skills and Competencies Taught

Managing and Supervising the Work of Others

Almost all BLC lessons teach small-group supervisory skills, either passively, through lecture and conversation, or actively, through practical application. Lectures address supervision concepts and principles. During group exercises, as rotating team leaders, students must plan and direct the team's effort to successfully complete the exercise. . . .

. . .

Other Skills and Competencies Taught

Skills and competencies beyond those described above emphasized in this course include:

- **Written communication:** Several short, graded written assignments require correct grammar, clarity, completeness, and conciseness.
- **Planning** skills are required for success on individual and collective exercises . . .

. . .

Key Developmental Activity

The 36-hour field training exercise culminating activity provides students the opportunity to practice the key skills taught throughout the course and receive a leadership ability evaluation.

. . .

RAND *RR1919-5.1*

Table 5.3
Army Focal MOSs: Top 5 Criticality Percentage

	E-4		E-5		E-6
	11B[a]	19K[b]	11B[a]	19K[b]	11B[a]
Nontechnical Skill	(*n*≈107)	(*n*≈20)	(*n*≈41)	(*n*≈35)	(*n*≈23)
Decisionmaking/decisiveness	63	58	72	73	57
Training others	44	45	58	40	39
Leading, motivating, and inspiring others	36	48	***42***	***44***	39
Critical thinking	39	***40***	40	37	***37***
Being dependable and reliable	38	33	37	***40***	***33***
Oral communication	30	***30***	39	***44***	***37***
Situational awareness	41	45	40	20	35
Managing/supervising the work of others	***16***	***33***	***31***	33	***33***
Teamwork and team-building	45	***55***	45	21	28
Operating safely	28	***48***	33	***30***	13
Adaptability	29	38	37	***26***	***24***
Handling work stress	32	23	30	29	***15***
Continuous learning	30	35	28	20	17
Conscientiousness and attention to detail	24	***20***	19	13	22
Behaving ethically	10	18	20	17	20
Interpersonal skills	7	13	16	11	26
Project planning	8	13	12	7	13
Persistence	12	***15***	14	3	11
Written communication	7	15	7	3	7

NOTES: Dark green = 30% or greater; light green = 20% to 29.9%; yellow = less than 20%. Numerals in italics indicate a difference of 10 or more percentage points between the frequency and importance percentages.

[a] Infantry Soldier .

[b] Armor Soldier.

Table 5.4
Marine Corps Focal MOSs: Top 5 Criticality Percentage

	E-4		E-5		E-6	
	03[a]	08[b]	03[a]	08[b]	03[a]	08[b]
Nontechnical Skill	**(*n*≈43)**	**(*n*≈46)**	**(*n*≈49)**	**(*n*≈26)**	**(*n*≈22)**	**(*n*≈18)**
Decisionmaking/decisiveness	64	63	76	***69***	68	64
Critical thinking	52	***39***	54	***42***	***50***	19
Being dependable and reliable	55	36	***39***	***21***	39	42
Training others	40	34	36	46	27	31
Leading, motivating, and inspiring others	33	23	30	37	32	22
Managing/supervising the work of others	***27***	30	***17***	38	41	***36***
Adaptability	***29***	14	35	19	30	31
Teamwork and team-building	31	***31***	18	21	14	31
Oral communication	27	40	27	***17***	34	***28***
Handling work stress	22	34	19	23	14	31
Operating safely	9	33	8	***27***	***16***	***36***
Situational awareness	***27***	26	29	31	27	25
Conscientiousness and attention to detail	21	17	23	***27***	***30***	25
Continuous learning	***23***	***32***	11	23	16	25
Behaving ethically	15	12	***13***	4	14	17
Interpersonal skills	9	***12***	***11***	13	11	11
Persistence	13	10	4	2	7	***6***
Project planning	3	6	7	8	16	11
Written communication	3	9	6	2	2	***11***

NOTES: Dark green = 30% or greater; light green = 20% to 29.9%; yellow = less than 20%. Numerals in italics indicate a difference of 10 or more percentage points between the frequency and importance percentages.

[a] Infantry Marine.

[b] Artillery Marine.

Table 5.5
Additional Army MOSs: Top 5 Criticality Percentages

	E-4				E-5					E-6			
	11B[a]	19K[b]	88M[c]	31B[d]	11B[a]	19K[b]	88M[c]	31B[d]	92Y[e]	11B[a]	88M[c]	31B[d]	92Y[e]
Nontechnical Skill	(*n*≈107)	(*n*≈20)	(*n*≈20)	(*n*≈54)	(*n*≈41)	(*n*≈35)	(*n*≈65)	(*n*≈41)	(*n*≈22)	(*n*≈23)	(*n*≈20)	(*n*≈57)	(*n*≈32)
Decisionmaking/decisiveness	63	58	***49***	***67***	72	73	60	***52***	70	57	63	***68***	65
Training others	44	45	***36***	***30***	58	40	45	39	***32***	39	***32***	36	29
Leading, motivating, and inspiring	36	48	39	28	***42***	44	32	43	***50***	39	***39***	40	48
Critical thinking	39	***40***	34	45	40	37	37	21	34	***37***	***29***	38	34
Being dependable and reliable	38	33	***44***	28	37	***40***	37	***33***	34	***33***	32	30	40
Oral communication	30	30	37	***48***	39	***44***	***44***	32	27	***37***	54	50	42
Situational awareness	41	45	41	29	40	20	18	23	18	35	19	21	15
Managing/supervising	***16***	***33***	22	12	***31***	33	***24***	22	34	***33***	32	***26***	29
Teamwork and team-building	45	***55***	56	39	45	21	***35***	30	30	28	24	24	26
Operating safely	28	***48***	***66***	24	***33***	***30***	20	23	5	13	34	18	18
Adaptability	29	38	24	27	37	26	25	28	***32***	24	27	***33***	28
Handling work stress	32	23	22	34	30	29	24	17	***23***	15	22	27	28
Continuous learning	30	35	27	27	28	20	***21***	29	39	17	15	22	29
Conscientiousness	24	***20***	17	17	19	13	11	15	14	22	12	15	14
Behaving ethically	10	18	***20***	21	20	17	21	32	14	20	20	27	17
Interpersonal skills	7	13	***19***	25	16	11	17	37	16	26	***22***	***43***	18
Project planning	8	13	20	7	12	7	9	***7***	***11***	13	17	***16***	6
Persistence	12	***15***	17	9	14	3	11	5	11	11	***17***	11	***15***
Written communication	7	15	7	15	7	3	21	10	***20***	7	***15***	18	20

NOTES: Dark green = 30% or greater; light green = 20% to 29.9%; yellow = less than 20%. Numerals in italics indicate a difference of 10 or more percentage points between the frequency and importance percentages.

[a] Infantry Soldier; [b] Armor Soldier; [c] Motor Transport Soldier; [d] Military Police Soldier; [e] Unit Supply Soldier.

Likert Ratings

We also explored the results of the Likert ratings of importance and frequency and compared the results with those obtained for the top five percentages. The Likert rating questions for importance and frequency are:

- Using a scale from 1 to 5, how important is each skill to the performance in the positions you held over the last year? (1= "not at all important" and 5 = "extremely important").
- Using a scale from 0 to 5, how frequently have you used each skill in your position? (0 = "never" and 5 = "all the time (several times a day)").

We first calculated the average importance ratings and average frequency ratings for each skill (see Appendix J). The resulting mean importance and frequency scores were then averaged (i.e., [mean importance rating + mean frequency rating] / 2) to arrive at what we refer to as the *Likert criticality rating*. The Likert criticality ratings for the Army and Marine Corps focal MOSs, respectively, are shown in Tables 5.6 and 5.7, with the skills ordered according to the average Likert criticality rating.

Comparing Table 5.6 to 5.3 and Table 5.7 to 5.4, it is clear that the Likert criticality ratings lead to a different rank ordering of skills for both the Marine Corps and Army MOSs than the top five criticality percentages. More specifically, the skills in Table 5.6 and 5.7 marked with a red box are skills that are noticeably higher in their rank order standing on criticality using the Likert criticality results. For example, in Tables 5.3 and 5.4, "conscientiousness and attention to detail" was at the bottom of the Tier II grouping for both the Army and the Marine Corps MOSs, yet in both Table 5.6 and 5.7, it ranks second from the top of the entire list of skills.

Given these differences, we opted to combine the top five criticality results with the Likert criticality results when presenting the findings in the toolkits. We explain the process we used to combine these two sources of information in Appendix J.

Combined Criticality Findings

As noted at the start of this section, an important product of this work is to offer one summative table combining the top five percentages and Likert rating results that can be easily interpreted by prospective employers. To create such a table, we used a weighted combination of the top five and Likert criticality findings (where top five criticality results were weighted twice that of the Likert criticality results) to produce what we refer to as the *overall criticality level* for each skill (see Appendix J for more explanation). We then simplified the results graphically for presentation in our toolkits. Tables 5.8 and 5.9 show the simplified results.

In these summative tables (Tables 5.8 and 5.9), we display the overall criticality results as belonging to one of three levels: *top most critical* (skills at the top of the list after the four evaluations were combined), *next most critical* (skills that were in the middle of the list), and the *remaining critical skills* (skills at the bottom of the list, but still rated on average as moderately important or occurring a few times a week). Solid boxes represent top most critical, hollow boxes represent next most critical, and three-pointed stars represent the remaining critical skills.

■ = Top most critical skills

□ = Next most critical skills

✳ = Remaining critical skills.

Table 5.6
Army Focal MOSs: Likert Criticality Ratings

	E-4		E-5		E-6
	11B	19K	11B	19K	11B
Nontechnical Skill	(*n*≈102)	(*n*≈20)	(*n*≈41)	(*n*≈35)	(*n*≈23)
Being dependable and reliable	4.72	4.64	4.84	4.67	4.91
Conscientiousness and attention to detail	4.68	4.55	4.74	4.49	4.92
Situational awareness	4.68	4.55	4.81	4.32	4.85
Handling work stress	4.54	4.50	4.60	4.37	4.76
Decisionmaking and decisiveness	4.47	4.38	4.75	4.65	4.85
Adaptability	4.59	4.45	4.75	4.26	4.68
Leading, motivating, and inspiring others	4.36	4.50	4.65	4.47	4.65
Operating safely	4.40	4.69	4.53	4.15	4.67
Managing/supervising the work of others	4.19	4.26	4.57	4.48	4.81
Oral communication	4.40	4.02	4.62	4.41	4.78
Critical thinking	4.35	4.21	4.56	4.26	4.66
Teamwork and team-building	4.39	4.31	4.57	4.07	4.70
Training others	4.33	4.12	4.52	4.23	4.74
Behaving ethically	4.28	4.45	4.37	4.15	4.67
Persistence	4.37	4.43	4.47	3.92	4.64
Continuous learning	4.29	4.31	4.28	3.95	4.53
Interpersonal skills	4.01	4.03	4.31	3.92	4.65
Project planning	3.96	3.74	3.85	3.27	4.44
Written communication	3.40	3.29	3.63	3.15	4.11

NOTES: Scores are averages of the mean frequency and mean importance ratings. Frequency/importance ranged from 0 or 1 (never/not at all important, respectively) to 5 (all the time/extremely important). Dark green = 4.5 or greater; light green = 4.0 to 4.49; yellow = less than 4.0. The red boxes indicate skills that are noticeably higher in their rank order standing on criticality using the Likert criticality results than they are based on the top five criticality results.

Table 5.7
Marine Corps Focal MOSs: Likert Criticality Ratings

	E-4		E-5		E-6	
	03	08	03	08	03	08
Nontechnical Skill	(*n*≈39)	(*n*≈45)	(*n*≈47)	(*n*≈22)	(*n*≈20)	(*n*≈16)
Being dependable and reliable	4.77	4.58	4.77	4.60	4.74	4.68
Situational awareness	4.64	4.57	4.61	4.36	4.57	4.70
Decisionmaking/decisiveness	4.53	4.40	4.68	4.57	4.66	4.60
Conscientiousness and attention to detail	4.72	4.46	4.66	4.53	4.57	4.49
Oral communication	4.56	4.40	4.44	4.42	4.66	4.55
Managing/supervising the work of others	4.11	4.47	4.35	4.69	4.55	4.45
Handling work stress	4.47	4.44	4.52	4.31	4.20	4.49
Adaptability	4.63	4.39	4.47	4.13	4.36	4.42
Operating safely	4.11	4.52	4.12	4.33	4.16	4.65
Critical thinking	4.43	4.13	4.37	4.15	4.50	4.30
Behaving ethically	4.49	4.31	4.33	4.26	4.30	4.39
Leading, motivating, and inspiring others	4.13	4.37	4.32	4.35	4.34	4.29
Persistence	4.44	4.24	4.28	4.09	4.11	4.29
Teamwork and team-building	4.26	4.24	4.29	4.19	4.11	4.08
Continuous learning	4.30	4.13	4.13	4.00	3.98	4.21
Training others	3.94	4.37	4.31	4.33	4.48	4.19
Interpersonal skills	4.09	4.07	4.16	4.09	4.14	3.97
Project planning	3.98	3.59	3.86	3.56	4.03	3.86
Written communication	3.64	3.12	3.29	3.08	3.46	3.87

NOTES: Scores are averages of the mean frequency and mean importance ratings. Frequency/importance ranged from 0 or 1 (never/not at all important, respectively) to 5 (all the time/extremely important). Dark green = 4.5 or greater; light green = 4.0 to 4.49; yellow = less than 4.0. The red boxes indicate skills that are noticeably higher in their rank order standing on criticality using the Likert criticality results than they are based on the top five criticality results.

Table 5.8
Summary of Nontechnical Skills Utilized in Army On-the-Job Experiences

		E-4 *(mid-level personnel)*		E-5 *(mid- to senior-level personnel)*		E-6 *(senior-level personnel)*
Tier	**Nontechnical Skill**	**Infantry (n≈107)**	**Armor (n≈20)**	**Infantry (n≈41)**	**Armor (n≈35)**	**Infantry (n≈23)**
I	Decisionmaking/decisiveness	■	■	■	■	■
	Being dependable and reliable	■	■	■	■	■
	Critical thinking	■	■	■	■	■
	Leading, motivating, and inspiring others	■	■	■	■	■
	Training others	■	■	■	■	■
	Oral communication	■	■	■	■	■
	Managing/supervising the work of others	⅄	■	■	■	■
	Situational awareness	■	■	■	□	■
II	Teamwork and team-building	■	■	■	□	□
	Adaptability	□	■	■	□	□
	Operating safely	□	■	■	■	⅄
	Handling work stress	■	□	■	□	⅄
	Continuous learning	■	■	□	⅄	⅄
	Conscientiousness and attention to detail	□	□	⅄	⅄	□
III	Behaving ethically	⅄	⅄	□	⅄	□
	Interpersonal skills	⅄	⅄	⅄	⅄	□
	Persistence	⅄	⅄	⅄	⅄	⅄
	Project planning	⅄	⅄	⅄	⅄	⅄
	Written communication	⅄	⅄	⅄	⅄	⅄

NOTES: ■ = Top most critical skills; □ = Next most critical skills; ⅄ = Remaining critical skills.

Table 5.9
Summary of Nontechnical Skills Utilized in Marine Corps On-the-Job Experiences

		E-4 *(mid-level personnel)*		E-5 *(mid- to senior-level personnel)*		E-6 *(senior-level personnel)*	
Tier	**Nontechnical Skill**	**Infantry (n≈43)**	**Artillery (n≈46)**	**Infantry (n≈49)**	**Artillery (n≈26)**	**Infantry (n≈22)**	**Artillery (n≈18)**
I	Decisionmaking/decisiveness	■	■	■	■	■	■
	Being dependable and reliable	■	■	■	□	■	■
	Critical thinking	■	■	■	■	■	⅄
	Leading, motivating, and inspiring others	■	□	■	■	■	□
	Training others	□	■	■	■	□	■
	Oral communication	□	■	□	⅄	■	□
	Managing/supervising the work of others	□	■	⅄	■	■	■
	Situational awareness	□	□	□	■	□	□
II	Teamwork and team-building	■	■	⅄	□	⅄	■
	Adaptability	□	⅄	■	⅄	■	■
	Operating safely	⅄	■	⅄	□	⅄	■
	Handling work stress	□	■	⅄	□	⅄	■
	Continuous learning	□	■	⅄	□	⅄	□
	Conscientiousness and attention to detail	□		□	□	■	□
III	Behaving ethically	⅄	⅄	⅄	⅄	⅄	⅄
	Interpersonal skills	⅄	⅄	⅄	⅄	⅄	⅄
	Persistence	⅄	⅄	⅄	⅄	⅄	⅄
	Project planning	⅄	⅄	⅄	⅄	⅄	⅄
	Written communication	⅄	⅄	⅄	⅄	⅄	⅄

NOTES: ■ = Top most critical skills; □ = Next most critical skills; ⅄ = Remaining critical skills.

To further simplify the information for our audience, we ordered the skills based on the criticality results averaged across both the Army and Marine Corps jobs that we examined, and then we grouped the skills into three tiers, again based on the overall criticality information that we obtained across both the Army and Marine Corps. *Tier I* includes skills that overall were primarily rated as top most critical or next most critical. *Tier II* includes skills that overall showed more variation in criticality ratings. Tier III includes the skills that remained.

It is important to highlight that the even though the Tier III skills were, on average, at the bottom of the list, they were all still evaluated to be at least moderately important and used at least a few times a week in every job we examined, and, in some cases, ratings of importance and frequency were even higher than that. As such, the labeling of *remaining critical skills* is deliberate, and employers should not regard these skills as not being relevant or practiced in the jobs we examined.

On-the-Job Experience Vignettes

The on-the-job experience vignettes use concrete *examples* (which we also refer to as *stories* or *vignettes*) to show how on-the-job experiences can develop skills that are transferable to the civilian workplace in terms that civilian employers understand. The stories included in this section of the materials illustrate real experiences of service members in Army and Marine Corps combat arms occupational specialties applying essential nontechnical skills on the job. They represent only a subset of the 252 stories that were collected during our focus groups and interviews with job incumbents and were vetted and revised through SME discussions, as detailed in Chapter Four.

To identify the subset of stories to include, we first grouped the stories by the skill they best represented, as judged by our SMEs. Occasionally, we reassigned stories from one skill to another skill because they better aligned with the reassigned skill's definition. Next, upon reviewing the 252 stories, we found considerable overlap in the stories for certain skills. That is, the types of stories for two different skills were in some cases highly similar. For example, there were many stories about paying attention to one's surroundings when patrolling routes and avoiding IEDs; approximately half of the job incumbents suggested that this represented "situational awareness," and the other half stated it was "conscientiousness and attention to detail." Instead of forcing distinctions, we created skill groupings and presented the stories for both skills together.

After grouping stories by skill, we focused our efforts on refining a select set of stories from only the Tier I and II skills (see Tables 5.8 and 5.9), because those were the ones that topped the list and had the richest story pool from which we could draw.[1] The final list of skills and skill groupings included in the vignettes sections of the toolkits is as follows:

- decisionmaking/decisiveness and critical thinking (skill grouping)
- being dependable and reliable (single skill)
- leading, motivating, and inspiring others (single skill)
- training others (single skill)
- oral communication and interpersonal skills (skill grouping)
- managing/supervising the work of others (single skill)
- teamwork and team-building

[1] The one exception is interpersonal skills, which was listed in Tier III.

- situational awareness and conscientiousness and attention to detail (skill grouping)
- adaptability and handling work stress (skill grouping)
- operating safely (single skill)
- continuous learning (single skill).

When determining which stories to present for a given skill (or skill grouping), we selected those that complemented each other by representing different facets of the skill, those that were considered most typical by our SMEs, and those that did not duplicate any of the other stories. For example, many stories about handling work stress referenced the importance of breaking down a big challenge into a series of small steps. Instead of including all relevant stories, we selected one that best illustrated a given theme. This selection process yielded a total of 61 stories total across all of the skills listed above.

The on-the-job experience vignettes are organized by skill (or group of skills). Before each set of vignettes is a discussion of the skill (or skill group) highlighted in the vignettes, organized as follows:

- **Bottom line:** A summary of the significance of the skill (or group of skills) in combat arms jobs (as shown graphically in the summary tables) and generalizability to other jobs.
- **Definition:** A definition of the skill or skills.
- **Overview:** A succinct discussion of how these stories might be relevant in civilian employment contexts, even if the individual circumstances might initially appear very different.

After this introduction, the vignettes for the skill (or group of skills) in question are presented. These vignettes are derived from stories we collected about on-the-job experiences from nearly 300 Soldiers and Marines. When determining which vignettes to present for a given skill, we selected those that complemented each other by representing different facets of the skill and those that were considered most typical by our SMEs. We then ordered the vignettes roughly by our view of how well they would resonate with civilian workplace, with the most relevant ones presented first. Each vignette follows the same format:

- **Title:** Named to highlight the point of the story.
- **Story Outline:** A succinct account of the story, outlined according to the situation in which the story takes place, the behavior or action that was taken, and the result that occurred after the skills were applied.
- **Full Story:** A more comprehensive version of the story written in paragraph form describing the details of the experience.
- **Source:** The storyteller's service, job type (and corresponding MOS code), and occupational level when the story occurred. Note, however, that although a story may have been experienced by someone at a high rank, it may still be applicable to individuals at ranks lower than that. In fact, in most cases, when reviewing these stories with senior service members serving as our SMEs, these experts evaluated the stories as likely to occur across multiple ranks. Thus, many of the stories are not rank-specific.

The examples in the "On-the-Job Experience Vignettes" section of the toolkits are specifically crafted to eliminate military jargon, translating for civilian employers the unfamiliar notion of military work into one that seems more similar to civilian work. Although the exam-

ples come from the combat arms branches, people from all services and all jobs can consult the vignettes to see a model of how to communicate with prospective employers and explain the value of the skills they have received through on-the-job experience in terms employers relate to. Employers can consult the vignettes to get a better sense for how on-the-job experience in combat arms occupations offers a range of opportunities to apply and practice many of the same skills desired and developed in civilian environments.

The on-the-job experience vignette sections build on the information included in the on-the-job experience summary tables in the same way that the course overviews build on the course summaries (see Figure 5.3). A complete on-the-job experience vignette section for the skill group "decisionmaking/decisiveness and critical thinking" can be found in Appendix I.

CHAPTER SIX

Lessons Learned for Development of Future Toolkits

In the previous chapters, we described our two-phase pilot effort to design a methodology for developing materials summarizing transitioning veterans' experiences. Results of that pilot effort confirmed that some approaches are not effective at producing usable information, and, as a result, we have many lessons learned to share with developers of future iterations of the prototype. This chapter discusses those lessons learned and makes recommendations for how researchers should implement the methodology in the future. We also discuss some of the limitations of the work and recommend follow-on research to address those limitations. Finally, we describe additional work that could help make the materials as useful as possible to veterans and employers.

Methodological Insights

As demonstrated in Chapters Three and Four, the methodological development was a highly iterative process. Table 6.1 highlights a number of insights we gained through this developmental process. We believe these insights are important to share so that the services can benefit from our initial experiences and conduct similar activities for additional MOSs.

Insights from Our Training and Education Course Study (Phase I)

Two main insights resulted from our Phase I work.

Our first insight is that reading course materials alone is not sufficient to develop the training and education summaries and matrixes presented here. While anyone with considerable personal military experience can gain a general idea of the nontechnical skills addressed through training and education by reading course documents, insight from course instructors and students is integral to ensuring that course overviews and examples address the most relevant nontechnical skills and capture real classroom and field exercises used by instructors. Most nontechnical skills are not explicitly taught or evaluated directly (leadership, management/supervision, and communicating orally and in writing are exceptions). Moreover, though students must exercise their nontechnical skills frequently throughout courses, course documents are rarely explicit about which skills they must exercise, and even when they are explicit, they often do not document the intensity, frequency, and means through which the course addresses the nontechnical skills.

Our second insight is that instructors and developers require skilled prompting and a straightforward approach to recognize which skills are most strongly emphasized. They were not readily able to identify and provide concrete descriptive examples of how courses address

Table 6.1
Methodological Insights

Insight	Description	Methodological Implication
Phase I		
Gaining course instructors' perspectives is critical.	Although course materials are helpful for developing a preliminary understanding of nontechnical skills taught in formal training and education, these documents often lack important information that can be gained through SMEs.	Discussions with SMEs will be required to collect necessary information about the role of nontechnical skills in formal training and education.
Eliciting relevant information requires skilled facilitators.	Course instructors and developers found it challenging to identify and provide concrete descriptive examples of nontechnical skills and recognize which skills were most strongly emphasized.	Facilitators who are knowledgeable about the military training, education, and essential skills will need to moderate discussions with SMEs to elicit relevant information.
Phase II		
SMEs and job incumbents need help identifying and creating relevant stories.	During our discussions in both the focus groups and the SME panels, there were clear discrepancies between what behaviors the RAND project team members believed were important to communicate to civilian employers and what behaviors service members believed were important. In addition, service members also had trouble providing all the required detail needed to create a complete illustrative vignette.	Discussions need to be guided by an experienced interviewer who understands the skill definitions and the goals for the vignettes and who can elicit the relevant information from participants. Refining and identifying the vignettes also requires the involvement of researchers and interviewers with civilian employment and military expertise.
Job incumbents are not experienced at writing vignettes and thus not likely to produce a concise story.	Although we instructed interviewees to use bullet points or summarize the events in the space provided on their packet because we would be going over the story in detail verbally, interviewees typically spent excessive amounts of time filling in all the details of their events. If this methodology is adapted for future use, we recommend that fewer lines be included in the packet.	Limit the lines in the questionnaire allotted to the stories and limit the time they spend writing. Note, however, that we have not fully tested the effectiveness of reducing the lines in the packet and their time for writing. Therefore, researchers applying this method in the future should confirm that doing so has the desired effect.
Participants conveyed two types of stories.	Two types of stories emerged: general military and MOS-specific. General military stories refers to those stories that are applicable to any MOS, whereas MOS-specific stories refers to those that are unique to a certain MOS.	Be aware of these trends and consider striking a balance between these two story types. General military stories will allow for greater generalizability because they are applicable across MOSs. MOS-specific stories will allow veterans to further differentiate their job experience from that of other veterans.
Similar stories demonstrated overlap between skills.	While the list of 19 nontechnical skills is detailed, many participants conveyed stories that could be classified as illustrating multiple nontechnical skills.	Consider collapsing the skills into a shorter list of nontechnical skills to increase differentiation between skills.
Combat-related stories have a shelf life.	We collected many combat-related stories; however, participants indicated that most younger Soldiers and Marines do not have combat experience.	Some adaptation of these kinds of stories will be required to ensure that they stay relevant.

Table 6.1—continued

Insight	Description	Methodological Implication
SMEs had difficultly pinpointing a single pay grade level.	While it is attractive to pinpoint certain skill levels to a single pay grade, this level of differentiation did not manifest in the SME ratings. In fact, there were very few times that SMEs rated a story as occurring for only one pay grade. Instead, SMEs typically evaluated incidents occurring across a range of pay grades.	Consider collapsing pay grades into simpler classifications, such as junior, mid-grade, and senior enlisted personnel.
Likert ratings in the surveys offered additional insights.	Survey results for the Likert ratings and the top five selections of most important and frequent skills provided useful insights.	Both should be retained in future surveys, and the results should be combined when grouping skills into the top tier (see Chapter Five discussion of how to combine the information).
Phases I and II		
Quantifying skill level was problematic.	Our attempts to quantify skill level in formal training, education, and on-the-job experience were unsuccessful. For example, we instructed participants to consider *all jobs* when making this evaluation and not just those in their MOS or service in order to allow for generalizability. This comparison is difficult to conceptualize, and participants repeatedly raised questions and expressed frustration when making these ratings.	Do not pose questions about skill level to research participants.
This research design takes time and a nontrivial amount of resources.	There were administrative and logistical challenges to executing this research design with multiple MOSs. These include, but are not limited to, identifying appropriate participants, scheduling and conducting meetings and focus groups, coordinating and distributing surveys, transcribing discussions, and entering data. The entire process is time-consuming and will require dedicated personnel, appropriate timelines for accomplishing the work, and sufficient resources to execute it.	Ensure that sufficient resources are allocated to future efforts. This includes support (e.g., military POCs) for gaining cooperation, scheduling meetings, and focus groups/survey administration.
Military personnel have difficulty identifying and translating their nontechnical skills.	Throughout the project, there were many instances that highlighted the difficulty that many Soldiers and Marines encountered when trying to identify relevant experiences and describe them in a way that a nonmilitary person could understand. Furthermore, there was a disconnect between what veterans considered important and what RAND project team members considered important to illustrate to employers.	More effort is needed in continuing the work described in this report and undertaking other initiatives to further assist veterans in translating their military experiences.

nontechnical skills without facilitators who were knowledgeable of both military training and education and the skills civilian employers seek. In fact, it took a great deal of probing and pointed questions to elicit the information that ultimately led to the materials included in the prototype. As a result, the interviewers need to be skilled in soliciting the appropriate information to ensure that the information is being interpreted correctly by the training and education SMEs. To illustrate, in some cases, the training and education examples SMEs gave to us to illustrate one of their top five skills often made it apparent that their understanding of the skill was in fact very different from how it had been defined for them. The differences were so stark that, in some cases, the example was more applicable to illustrating an entirely different skill on our list. By probing and asking many follow-on questions during the discussion, we were able to clarify instances in which SMEs did not understand the skills or the task at hand. Therefore, future refinement of the course review methodology and development of the on-the-job experience methodology will require both skilled facilitators and a straightforward approach. At the same time, designers should aim for an approach that is streamlined and time-efficient to minimize administrative burden.

Insights from Our On-the-Job Experiences Study (Phase II)

Seven notable insights came out of the Phase II work.

Our first insight—and a particularly noteworthy one—was that our participants in the Phase II study found it difficult to come up with performance examples that would make it clear to civilian employers that they had demonstrated those skills on the job. We regularly had to probe for more details from our participants to create a complete illustrative vignette. Like Phase I, this required skill on the part of the interviewer to solicit the appropriate information from focus group participants. It also required skill on the part of the researchers who were tasked with vetting, revising, and refining the stories for use in the prototype toolkits.

In addition, during our discussions in both the focus groups and the SME panels, there were clear discrepancies between what behaviors the RAND project team members believed were important to communicate to civilian employers and what behaviors service members believed were important. For instance, one SME panel initially wanted to delete the following story demonstrating being dependable and reliable:

> In my nine and a half years in the Army, I never called in sick or missed a day of work. I am committed to my responsibilities and fulfilling the needs of leadership and the Army. I use my time wisely and plan ahead so that my fellow Soldiers can depend on me. I arrive ten minutes early to meetings in the proper uniform with a pen and paper in hand and ready to work. I do this every day—not just when it's convenient or easy. I wouldn't and shouldn't have a job if I couldn't do what I am supposed to do. It's really pretty simple.

Their rationale for deletion was that the SME panel thought these behaviors were too basic and were therefore not worth including. While this demonstrates the norm for military culture, we indicated that this is not necessarily pervasive in the civilian workforce and therefore we—RAND project team members—strongly recommended including this story.

Our second insight is that asking service members to write a detailed story is not an efficient approach in terms of research time. We found that SMEs and job incumbents need help identifying and creating relevant stories, so a more effective approach is asking them to write just an outline for a story, and to then discuss it verbally with the whole group present.

Our third insight is that there were two types of stories that emerged through the focus group data collection: general and MOS-specific. For instance, one of the toolkit vignettes describes how Soldiers and Marines always have to be adaptable because, in the military, plans are constantly changing. This incident is applicable to any MOS throughout the military. Other stories were much more specific to certain MOSs, particularly in terms of certain weapon systems. For example, one vignette on teamwork describes working as a crew member for a mortar team. There is a difficult trade-off between stories being specific enough that they resonate with veterans and general enough that they are at least somewhat applicable to all combat arms positions. Once the optimal level of detail is determined, future research can adjust the focus group interviews to elicit stories that comply accordingly.

Fourth, we found that there is significant overlap for particular skills. For instance, many of the stories for adaptability also applied to handling work stress, and vice versa. Indeed, according to the taxonomy presented by Pulakos et al. (2000), many adaptability components address stress. Below is an example of a critical incident that could apply to either handling work stress or adaptability:

> I was the comms (communications) guy for a pre-deployment mission from Point Mugu to San Luis Obispo. After doing a final comms check to make sure the equipment was working (checking batteries, etc.), I found out that the system we use to send imagery over the airways between bases was not operating correctly. It looked like the space certificate was expired. Sending imagery is a necessary component for the mission so it was a huge problem that it wasn't working. I needed to figure out how to fix it as quickly as possible. I stayed calm and turned to my network of other people I knew from other elements of the operation and friends from Camp Pendleton. After reaching out, some of my friends from Camp Pendleton were able to upload the program on the computer and send me the password, so the mission could commence with working comms equipment. By remaining calm and utilizing the resources that I had available to me, I was able to quickly handle and resolve the incident and we were ultimately able to complete the mission successfully.

Therefore, in developing future toolkit materials, the skills may need to be refined and/or collapsed into groups, similar to how we grouped them here.

Fifth, there is a shelf life for combat-related vignettes. In one of the SME panels, a SME brought up the issue that, as of 2016, many new veterans who are entering the civilian workforce have combat experience. However, many junior enlisted personnel (E-1 through E-4) do not, and they may not see combat during their military career. Thus, combat-related stories included in these materials might only resonate with veterans for a fixed amount of time, after which training-related stories will resonate more strongly. This insight deserves consideration for the collection of stories in future efforts.

A sixth insight is that SMEs have trouble pinpointing a single grade level for when an experience typically occurs. It is possible that this is because service members are trained to perform two grade levels above their current position in case they would ever need to fill that role when their superior is unable to do so (on temporary duty assignment, on leave, etc.). Perhaps future research should collapse the grade levels and focus instead on a simpler classification (e.g., more junior and senior levels).

Seventh, preliminary examination of the survey responses suggests a possible halo effect, such that there were high ratings with little variance for the questions asking respondents to rate the frequency and importance of each skill for their job. Additionally, differences between

skills are often tenths of a decimal point. Based on prior experiences, we anticipated that this may happen, which is why we included the selection of the top five most frequent and important skills. However, after closer examination, the Likert criticality rating information proved to be useful additional information for examining which skills are considered most critical. It also showed that military personnel viewed all the skills as relevant on the job, even the ones that fell at the bottom of the list. As a result, we recommend that future efforts use a similar process to combine the results of the Likert ratings with the results of the top five selections to capture that supplemental information.

Crosscutting Insights

Three important insights and conclusions cut across both phases of our work.

First, while it may be attractive to quantify skill level in order to compare dissimilar specialties (see discussion in Chapter Two), quantifying skill levels is difficult. Despite a major effort, during Phase I we were not able to successfully quantify skill levels or amount of learning either internally with RAND researchers or externally with course instructors. And we were no more successful in similar efforts in Phase II. We found that asking military job incumbents to estimate the level of each skill typically required in their job also proved ineffective. Our approach was simply too complex to elicit the necessary agreement among researchers or our participants. If that information is deemed important in future research efforts, a simplified approach will have to be taken.[1]

Second, this research takes time and a nontrivial amount of resources. The administrative and logistical challenges to executing this research design with multiple MOSs include securing data collection approvals, identifying appropriate participants, scheduling and conducting focus groups, coordinating and distributing surveys, and transcribing discussions and entering data. In the future, various attempts could be made to streamline these activities. For example, the services might establish a procedure for identifying relevant participants and coordinating data collection with organizations that serve transitioning veterans. Also, the most critical skills for an MOS or pay grade might be targeted, rather than the full 19.

Third, and most importantly, it is apparent that military personnel generally have difficulty describing the skills they developed during their military service in terms of important civilian job–related skills. Although instructors and course developers have the appropriate insights and expertise to identify the top skills and to provide us with examples illustrating those skills, doing so did not come naturally to them. We observed the same issue in Phase II when talking with Soldiers and Marines. This confirms the original impetus for this study—namely, that veterans need help articulating how they practiced and developed essential skills during their time in the military. It also suggests that there is a need for these types of materials and that continued work applying this methodology to other military jobs could be beneficial for transitioning veterans.

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[1] Participants frequently asked questions and expressed frustration about the rating scale. It is possible that a different population (e.g., more senior enlisted or officer personnel) may be better positioned to make this evaluation because they have more experience with a greater variety of jobs; however, more effort would need to be devoted to identifying the appropriate population and line of questioning, and whether it ultimately would be successful remains to be seen.

Limitations of the Research and Recommended Follow-On Work

There are a number of limitations to our research effort to develop prototype toolkits that are important to note. These represent potential limitations to both the methodology developed to describe the essential skills developed by veterans and to the utility of the prototype toolkits.

The first limitation is that the materials were not designed to be comprehensive of all military jobs. Both phases of this research effort were pilot efforts, and the resulting materials were intended to serve as proof-of-concept prototypes. Consequently, the effort was limited in time, resources, and scope. We scoped our effort to focus exclusively on defining formal military course experiences for the combat arms branches and on-the-job experiences for a subset of MOSs within the combat arms branches. We selected combat arms MOSs that were the most populous, and we focused on the courses that were completed by the largest numbers of combat arms personnel. In this way, the materials are specific to the MOSs and branches we targeted. Nonetheless, as we argue in the introduction to this report, in many cases the information in this toolkit could be generalized to non–combat arms personnel.

Second, we also established a tight timeline for both Phase I and Phase II to allow us to produce a set of prototype materials that could begin to be used by veterans and employers, even if they were not intended as comprehensive summaries of all experiences or all MOSs. In the face of hard deadlines for producing the prototype materials in both Phase I and Phase II, we had the time and resources to meet with a majority of the SMEs and job incumbents we hoped to include; however, we were not able to include all of the SMEs and job incumbents within the targeted MOSs that would be ideal. As a result, a few gaps in the prototype materials remain, even within the combat arms branches we targeted.

For example, while our materials review the Army Basic Combat Training course, enrolled in by every Army enlistee, the corresponding Marine Corps Recruit Training course could not be included in these materials due to Phase I study timeline constraints. Similarly, during Phase II, some of the MOS pay grade groups could not be included due to timeline constraints. Nevertheless, given the findings from the courses and MOSs and grade groups that could be included (namely, the similarities that were observed in on-the-job experiences across grade groups and courses across services), we believe the information that would have been obtained had the additional pay grade groups been included would likely have been similar to the information already collected.

Third, some course content in the prototype is specific to a particular MOS (e.g., some Army Advanced and Senior Leader Course content differs across MOSs and military branches). As a result, some of the experiences described in the prototype may not be identical to experiences by members of other MOSs in the combat arms branches or in MOSs outside of the combat arms. For example, other recent research in the area of nontechnical skills in the Army suggests that combat arms occupations tend to have different top-rated skills than operational support and force sustainment occupations (Wenger et al., 2017). If future versions of these materials are created, they could include more courses offered by more military branches and services. Similarly, the on-the-job experiences are also, in some cases, unique to an MOS. As a result, we suggest developing similar materials for other MOSs and branches in the Army and Marine Corps. The extent to which the experiences generalize to the Navy and Air Force is also unknown. We therefore recommend that future efforts explore experiences in those services.

Fourth, the content taught in any one course is dynamic—instructors constantly modify courses, and changes are not always documented. Therefore, the exact way a course is executed

can vary to some degree by instructor, location, and date taught. This is particularly true for the Marine Corps Advanced Leader Course, whose instructors were in the process of redesigning at the time these materials were created. Further, whether a given course is offered also changes over time. The materials in these toolkits reflect courses as delivered in 2014. A veteran who was an Army E-5 in 2002, for example, may or may not have taken the Basic Leader Course. On the other hand, he or she will most likely have taken a course with similar content and objectives, such as the Primary Leader's Course.

Fifth, with respect to the training and education information described in our prototype toolkits, we created the content based on our course document review and interviews with feedback from a few instructors or course developers per course. It is possible that the information provided in the toolkits could differ had we had solicited feedback from other instructors of each course or if we had interviewed students or recent graduates. The on-the-job experiences are potentially subject to variability in a similar fashion. We spoke with many individuals about their experiences, but we also discovered that there were differences in their experiences. Although SMEs from each MOS helped identify the most applicable and appropriate stories for inclusion in our prototype, it is possible that, had we included different SMEs, the stories selected would have been different. It is also likely that there are other representative experiences that were not captured in our discussions.

Sixth, we added three new skills after Phase I review; as a result, they were not considered in the review of the training and education courses. However, we believe it is very unlikely that these three new skills would have made it into the top skills list, had they been included in the Phase I list of skills, for two reasons. First, we asked our instructor/course developer SMEs if any top skills were missing, and they did not identify any of the three we added during Phase II. Second, in our review of the training and education materials and discussions with SMEs about the key course events and course content, the additional three skills were not identified as the skills that were being reinforced by the exercises. We suspect that the three additional skills would not have made the final cut for inclusion in the course summary tables or the course overviews.

Seventh, in the focus groups and SME panels, it is possible that conformity pressures influenced the responses we obtained about the typicality and accuracy of stories (Morgeson and Campion, 1997). Many, if not all, of the focus group participants and SMEs worked together and would share many of the same experiences. Our original intention was to prevent these biases by designing the final survey to include stories for quantitative evaluation feedback from all the survey respondents; however, given timeline restrictions in the pilot effort, we abandoned this approach.

Eighth, while we conducted an initial screening of the stories through the SME panels, stories would benefit from additional vetting. Ideally, we would include the training and education examples and on-the-job experience vignettes (collected and refined during the various interviews and focus groups) in the surveys so they could be examined by a wider audience; however, time constraints for the Phase II methodology precluded this from occurring (i.e., the survey had to be administered concurrent to the vetting and revising of the on-the-job stories). Future research efforts should consider adding this as a final step and exploring whether the additional vetting leads to any appreciable changes in the resulting toolkits.

Ninth, we were not able to take the important step of implementing a structured process for having the prototype toolkits actually tried by their intended users (employers, veterans, and career counselors) and getting their feedback on how to change or improve these prototypes.

For example, no civilian employers reviewed the on-the-job vignettes to provide feedback on interpretability and relatability to civilian work. Given that these prototypes were developed without direct feedback from the user community, taking this step is critically important for ensuring that the toolkits are as useful as possible. In short, we recommend that the vetting process for the prototype material continue and that future iterations of this methodology also include provisions for extended vetting of any new information in a similar fashion.

Finally, though not a limitation, some skills—such as conscientiousness or dependability—are sometimes considered stable traits rather than malleable skills. However, the military provides courses that are designed to increase proficiency in the areas referenced in these materials, suggesting that the military views these as changeable skills that can be trained and developed over time. In keeping with this view, and for the sake of conciseness, in this report and the prototype toolkits we refer to all skills, traits, and competencies as skills.

Bottom Line for Extending This Methodology and Applying It to Other Services and Additional MOSs

The methodological insights and limitations noted above helped inform our recommendations for how the methodology could be improved upon and how it could be potentially applied to develop materials for other MOSs, both within and across the services. In short, we recommend that the methodology be applied using the "Top Skills" approach. This approach relies on group discussions with training and education SMEs (instructors and course developers) who participate in a guided discussion about their responses to the short form presented in Appendix D. That guided discussion should include probing for stories to back up any statements about the top skills, as well as group discussion about why each participant chose certain skills in their list of top skills addressed by the training and education. In the end, the researchers will need to edit the stories and use their expert judgment to determine which stories are usable and relevant to a particular skill. Course materials will need to be reviewed to help inform the write-ups of the course summaries and to prepare for meetings with SMEs. We also recommend vetting the current and future write-ups with additional instructors outside the group discussion process, with recent course graduates, and with civilian employers. Because we were unable to administer these steps during our pilot study, researchers would need to design an approach for this effort.

We recommend that the on-the-job experience methodology be applied using audiotaped guided focus group discussions with follow-on interviews to supplement the stories obtained from the focus groups. Focus groups should be led by a skilled interviewer. The questionnaire in Appendix F should be administered during the focus groups; however, the skill-level questions should be omitted. Stories resulting from the focus groups should be edited and vetted by additional military and civilian SMEs and then revised by the researchers. SME discussions should take place in person and, like the focus groups, be led by a skilled interviewer. Additional personnel should also be surveyed (see survey in Appendix G) to determine which skills are most critical to the job (again, the questions on skill level should be omitted). We also recommend sending the vignettes to additional military personnel via survey after the revisions to further ensure their validity. Because we were unable to administer this step during our pilot study, researchers would need to craft additional survey items to address it.

Once the content of the toolkit has been designed, we recommend additional validation of the materials both to determine the long-term usefulness of our approach and to guide continuing updates and improvements. Thus, we recommend obtaining feedback (through interviews, focus groups, or brief surveys) from civilian employers and veterans about their experience with the toolkit and the extent to which it improved the matching of qualified veterans with appropriate employment.

Making the Most of the Toolkits

As standalone documents, the prototype toolkits that we produced have the potential to be very useful for helping veterans talk about their skills with employers. Likewise, they have the potential to raise awareness of the types of nontechnical skills veteran applicants may bring to the table. However, our recommendation is to undertake additional initiatives to get the greatest impact from the prototype toolkits.

First, we recommend a further research effort to vet the prototype toolkits with a broad range of intended users (civilian employers, veterans, and veteran career counselors) to guide continuing updates and improvements. User feedback on the prototype toolkits is critical to maximizing their usefulness and may lead to important changes to the format and content. The earlier that feedback is obtained, the sooner new toolkits can capitalize on any improvements that result. Specific feedback could be obtained through interviews, focus groups, or brief surveys. The goal would be to determine what changes or additions are needed and how the toolkits can best be used.

Second, given our finding that veterans can have difficulty in translating their nontechnical skills in ways that make sense to civilian employers, we recommend pairing veterans with career counselors and other skilled professionals to get the greatest impact from the prototype toolkits. No training for users of the toolkits yet exists. Therefore, we suggest that people who are assisting veterans and who are meeting with employers be trained in how to maximize the effectiveness of the toolkits. Those trained in how to use the toolkits could then coach veterans who are looking for employment in how to adapt the existing vignettes to their own experiences during their job search. Distance learning programs could also be developed that instruct veterans in the use of the toolkits and lead them step-by-step through the process.

Such training for career counselors would need to be developed and tested to ensure its success; however, among the elements that should be included are techniques for eliciting similar stories from veterans. We learned through our discussions with training and education SMEs and job incumbents that telling such illustrative stories may not come naturally to many military personnel, even if they have the experiences to back up the stories. Instead, interviewers had to probe for and tease out important story details from participants. Career counselors would be in the position of having to do the same to help veterans articulate their experiences in ways that would be relatable to employers, particularly employers with little military knowledge.

In addition, the people who are meeting with employers to help educate them about the value that veterans bring should also receive training on how best to maximize the value of the toolkits. Again, such training would need to be developed and tested. As pointed out above, a first step toward defining the relevant training content could be getting employer feedback on what they see as the most useful and least useful parts of the toolkits and why. Using that

feedback, the training could be designed to both capitalize on the most useful elements and give further instructions that clarify how elements that were identified as less useful could be reframed or explained to the employer audience to make them more useful.

Closing Thoughts

Despite the challenges and limitations, we were still able to develop a pair of toolkits that could be useful to members of the combat arms branches. The prototypes identify skills that are critical for their jobs, provide relatable representative stories about their on-the-job experiences, and describe the top skills addressed in the military training and education experienced by most combat arms professionals.

The toolkits also have the potential to be useful to transitioning veterans in many other branches and, potentially, in the other services. They provide examples of how all veterans can talk about their experiences on the job in ways that would resonate when writing résumés or meeting with employers. The stories provide a benchmark against which members of the combat arms and non–combat arms professions can compare their own on-the-job, training, and education experiences. Looking at the course and on-the-job experience tables, veterans can determine whether the priorities in their own occupational specialty are similar or different from those reported in the toolkits. They can also compare the course summaries and on-the-job experience vignettes to determine whether their experiences were similar or different. These are just a few examples of how the materials can be used more broadly than just for the combat arms MOSs.

Lastly, we note that although the materials presented here have the potential to be useful to veterans from other military occupations, there may well be value in replicating and extending this process to produce materials for a range of other types of occupations, both within and across the services. In this study, we conducted a preliminary exploration of this issue with SMEs from a few other MOSs. In their view, many—though not all—of the vignettes we collected were applicable to those other MOSs with minimal to no changes. Thus, our preliminary look at this issue also suggested that at least some of the stories of on-the-job experiences could differ in meaningful ways across jobs and services. For that reason, it would be ideal to capture some examples from MOSs outside of the combat arms (and in the other services) in additional materials. Doing so could ultimately help employers better appreciate the breadth of experiences that can occur in military jobs. And it could fill perceived gaps in the existing toolkits—most importantly, where the examples are too context-specific to translate to other military jobs.[2]

[2] Given that user feedback on the prototype toolkits may lead to important changes to the format and content, we suggest soliciting employer feedback on the prototype toolkits we developed first, before developing new toolkits, so that new toolkits can capitalize on any improvements that result.

APPENDIX A

Existing Transition Resources

This appendix provides examples of resources currently available to transitioning veterans and employers.

Resources for Veterans

Joint Knowledge Online Military

Barbara Adams, "How to Write Your Materials," 2017. As of April 6, 2017:
http://content.taonline.com/Transition-Guidance/
Veterans-Advantages-How-to-Write-Your-Materials

The Transition Guidance section of this online resource includes a section on "How to Write Your Materials" that encourages veterans to think about answers to such questions as "How do you develop and implement strategic change within an occupation?" and "How do you design and implement strategies to maximize employee potential, build teamwork, and reduce conflict in an inclusive work environment that values diversit?"

O*NET Code Connector

O*NET OnLine, "Summary Report for: 11-1021.00—General and Operations Managers," no date. As of April 6, 2017:
http://www.onetonline.org/link/summary/11-1021.00

O*NET matches military MOSs to a civilian occupation taxonomy that contains nontechnical valued skills in each description of an occupation (categorized as skills, abilities, or work activities), along with brief definitions of each skill. The resource connects many Army combat arms MOSs to civilian occupation types, though across services it provides combat arms branches with less detail than it does for other billets.

MyNextMove

MyNextMove.org, "Training & Development Managers," no date. As of April 6, 2017:
http://www.mynextmove.org/vets/profile/summary/11-3131.00

Like the O*NET system, MyNextMove matches an MOS to a set of civilian occupations and includes some typical nontechnical valued skills associated with those occupations. Also like O*NET, it provides combat arms branches with less detail compared with other billets.

Resources for Employers

Project Hired

Project Hired, website, 2017. As of April 6, 2017:
http://www.projecthired.org/

This website is referenced by many organizations that connect the skills military personnel develop through training, education, and experience with civilian needs. The resources available to employers refer to skills translation in general terms. Most of the site is dedicated to discussing laws and regulations affecting veteran hiring, as well as tax incentives and other, more operational considerations.

Society for Human Resource Management

Society for Human Resource Management, "Military Employment Resource Page," 2017. As of April 6, 2017:
http://www.shrm.org/hrdisciplines/staffingmanagement/articles/pages/military.aspx#about

Society for Human Resource Management (SHRM) compiles articles and links to externally hosted resources. Some SHRM resources require SHRM membership.

Reinventing Michael Banks

Reinventing Michael Banks, website, no date. As of April 6, 2017:
http://www.reinventingmichaelbanks.com/

The short movies available through this website show the skills military personnel develop through training, education, and experience.

APPENDIX B

U.S. Department of Education's Competency Source Overview

In a 2012 synthesis of the competencies that employers seek in employees, the U.S. Department of Education created a matrix that shows the nine competencies that 19 "widely cited" sources most frequently include as part of their competency models. This matrix is reproduced in Table B.1.

Table B.1
U.S. Skills Named in Commonly Cited Competency Models (Compiled by the Department of Education)

	Applied Knowledge		Effective Relationships		Workplace Skills				
Resource[a]	Applied Academic Skills	Critical Thinking Skills	Inter-personal Skills	Personal Qualities	Resource Management	Information Use	Comm-unication Skills	Systems Thinking	Technology Use
21st Century Skills for Workplace Success, NOCTI	X	X	X	X			X	X	X
Arizona's New Workplace Skills, Arizona Department of Education		X	X	X	X		X	X	
Assessing 21st Century Skills, Board on Testing and Assessment, the National Research Council		X	X	X	X		X		
Assessment and Teaching of 21st Century Skills, Cisco, Intel, and Microsoft		X	X	X	X				X
Career Clusters Framework, National Association of State Directors of Career Technical Education Consortium	X	X	X	X	X	X	X	X	X
Citizenship Foundation Skills and Knowledge Clusters, U.S. Citizenship and Immigration Services						X	X		
Common Employability Skills, National Network of Business and Industry Associations	X	X	X	X	X	X	X	X	X
Comparative Analysis of Soft Skills: What is Important for New Graduates? U.S. Department of Agriculture		X	X	X	X		X	X	X
Employability Assessment Rubric, Chicago Public Schools		X	X	X		X	X		X
Employability Skills 2000+, Conference Board of Canada			X	X	X		X		X
Employability Skills Blueprint, SkillsUSA			X	X	X		X		X

Table B.1—continued

Resource[a]	Applied Knowledge		Effective Relationships		Workplace Skills				
	Applied Academic Skills	Critical Thinking Skills	Inter-personal Skills	Personal Qualities	Resource Management	Information Use	Comm-unication Skills	Systems Thinking	Technology Use
Equipped for the Future, Center for Literacy Studies, University of Tennessee	X	X	X	X		X	X		X
Industry Competency Models, Employment and Training Administration, U.S. Department of Labor	X	X	X	X	X	X	X	X	X
Maryland Skills for Success, Maryland State Department of Education		X	X	X	X		X		X
National Career Readiness Certificate, ACT	X	X	X	X		X			
National Work Readiness Credential		X	X	X			X	X	X
O*NET, Employment and Training Administration, U.S. Department of Labor	X	X	X	X	X		X	X	X
Partnership for 21st Century Skills	X	X	X	X		X	X	X	X
Secretary's Commission on Achieving Necessary Skills (SCANS), U.S. Department of Labor	X	X	X	X	X	X	X	X	X
Workforce Skills Certification System, CASAS and Learning Resources, Inc.	X	X	x	x					

SOURCE: U.S. Department of Education, 2012.

NOTES: These examples represent a sample of employability standards and assessments compiled during an inventory of employability skills conducted in 2012. They do not represent an exhaustive list of employability skills but, rather, include sources that are widely cited. The content of these sources may change over time to address skills that are not reflected in the above matrix.

[a] The original matrix, at http://cte.ed.gov/employabilityskills/index.php/framework/source_matrix, lists these resources as hyperlinks to the resource website.

APPENDIX C

Level-of-Skill Anchors for Two Additional Skill Dimensions

As part of our Phase I effort, we customized the anchors to each of the skills included on the final Phase I list. For example, the main report defines each level of the "decisionmaking" skill. Anchors for two other skills are shown below.

Training Others

- **Definition:** Plans, organizes, and conducts activities that increase the capability of individuals or organizations to perform specified tasks or skills. Has knowledge and experience applying employee development concepts, principles, and practices related to planning, evaluating, and administering training and education initiatives. *(Related terms: teaching, developing skills.)*
- **Advanced Activity (5):** Activity requires the planning and conduct of complex training activities. It involves overseeing the deliberate imparting of knowledge to others using systematic evaluation of their current knowledge, skills, and abilities and intentionally developing them further. Activities may involve developing lesson plans or training agendas, objectives, or delivery systems. This may involve teaching or instructional activities where the methods of instruction are not clearly specified or well established, or it may involve managing and directing the work of instructors and trainings, including guiding curriculum development, conducting training needs analyses, or evaluating the effectiveness of training and education or the instructors. It may involve teaching others how to teach. *Examples include education department heads, training curriculum developers, school principals, or other training jobs that are largely unstructured; a professor developing a university-level course; a high school teacher developing a new experimental course curriculum.*
- **Intermediate Activity (3):** Activity requires imparting knowledge, skills, or abilities in a formal training or education environment or setting, or to individuals formally considered to be apprentices or "in training." Delivery of the material to be learned is fairly straightforward and may involve following preexisting lesson plans, developing simple lesson plans, or meeting clearly specified or well-established training objectives. *Examples include activities where new employees are expected to be formally trained in key procedures or techniques or where personnel being trained are considered to be apprentices, such as medical residents, veteran police officers training new officers, or an experienced bus driver training a new driver on a route; instructors or teachers implementing an existing curriculum (such as coaches, teachers, medical preceptors, or internal organizational trainers).*

- **Basic Activity (1):** Training or educational activities are done in an informal or unstructured environment or setting, or, when imparting of knowledge is expected in the activity, the methods for instruction are very basic and straightforward and well established. Delivery of the material to be learned is not particularly difficult. *Examples include providing new-employee orientations or basic on-the-job training of new personnel, such as when a new employee is taught skills by incumbents during the course of a work shift.*
- **None/Not Applicable:** Activity rarely, if ever, involves planning or conducting training of others. *Examples include activities that are mostly solitary or independent, such as for small businesses that have not yet reached the point of hiring employees outside of the original group, writers, or most independent or freelance workers.*

Teamwork and Team-Building

- **Definition:** Establishes productive relationships with other team members to perform team tasks and works to improve team performance; acknowledges team membership and role; and identifies with the team and its goals. Team-building activities include improving the ability of a team to work together to accomplish a task or activity; resolving conflicts within a team; developing collaboration to promote learning and expand team perspectives; discouraging unproductive behavior among team members; and encouraging and building mutual trust, respect, and cooperation. *(Related terms: team player, followership, cooperation, collaboration.)*
- **Advanced Activity (5):** Activity requires working in highly interdependent team settings in which failure to collaborate effectively with others can have serious consequences and the work product is clearly a group-level outcome. Interactions among collaborators are highly advanced, with expectations of constant interaction and information sharing, and the work cannot be completed in isolation or without assistance from others. *Examples include emergency response teams; team sports; tactical response teams; firefighters.*
- **Intermediate Activity (3):** Activity requires functioning in teams or collaborating closely with others in order to accomplish important tasks. The types of collaboration tend to be somewhat complex, with collaborators having differing areas of responsibility with respect to a shared outcome. Activities require regular contact and high levels of information sharing among collaborators in order to be successful. The work that results is expected to be better than what would be achieved by individuals working independently. Failure to collaborate effectively with others can have moderately high consequences (financial or otherwise). *Examples include marketing or sales teams; collaborating on the production of a TV series; flight crews.*
- **Basic Activity (1):** Reliance on or collaboration with others is ideal but not absolutely necessary to effectively perform the work. At this level, failure to collaborate or collaborate effectively will typically result in lower efficiency or lower-quality work. Consequences of failure in these teamwork settings are not expected to be severe. Expectation is that some type of collaboration with coworkers will occur, leading to a group-level product or outcome, but the activity tasks are not highly interdependent and at times can be executed with only minimal collaboration with others. *Examples include working on a building construction crew; working in a restaurant kitchen; event planners.*

- **None/Not Applicable:** Activity tasks are typically executed individually or only require ancillary contribution to a group product (such as solitary work in an assembly line contributing production of a larger product). *Examples include bank tellers, bookkeepers, administrative staff, professors, bus drivers, sales activities, automotive assembly line workers.*

Definition Sources

Michelle R. Ennis, *Competency Models: A Review of the Literature and the Role of the Employment and Training Administration (ETA)*, Pilots and Demonstration Team, Division of Research and Evaluation Office of Policy Development and Research, Employment and Training Administration, U.S. Department of Labor, January 29, 2008. As of April 6, 2017: http://www.careeronestop.org/COMPETENCYMODEL/Info_Documents/OPDRLiteratureReview.pdf

U.S. Department of Labor, Employment and Training Administration Competency Model Clearinghouse, no date. As of April 6, 2017: http://www.careeronestop.org/CompetencyModel/

U.S. Office of Personnel Management, *Delegated Examining Operations Handbook: A Guide for Federal Agency Examining Offices*, Washington, D.C., 2007. As of April 6, 2017: https://www.opm.gov/policy-data-oversight/hiring-information/competitive-hiring/deo_handbook.pdf

U.S. Office of Personnel Management, *Multipurpose Occupational Systems Analysis Inventory—Close-Ended (MOSAIC) Competencies*, Washington, D.C., January 2013. As of April 4, 2017: http://www.opm.gov/policy-data-oversight/assessment-and-selection/competencies/mosaic-studies-competencies.pdf

APPENDIX D

Form Completed by Training Subject-Matter Experts During Interviews

We used the first of the two forms shown in this appendix to aid our initial SME interview discussions (Figure D.1). However, SME difficulty in completing the "Amount of Learning" and "Level of Skill" sections of the first form informed our decision to use the "Top Skills" methodology instead, which relied on the second form (Figure D.2). For more explanation of "Amount of Learning" and "Level of Skill," see Chapter Three and Appendix C.

Figure D.1
Expanded Rating Form

Overall, how many days or weeks long is the training? _____

			Amount of Learning		Level of Skill
Mark the Top 5-7 MOST developed in the training	Mark the Top 5 LEAST developed in the training	Skill or Competency	What % of training involves learning about or practicing the skill? (0, 25, 50, 75, 100)?	What % of that involves practical application and practice versus passive learning (0/100, 25/75, 50/50, 75/25, 100/0)?	What anchor best describes the activities being targeted (1-5)?[a]
		Decisionmaking			
		Critical thinking			
		Continuous learning			
		Training others			
		Teamwork/team-building			
		Interpersonal skills			
		Negotiation			
		Oral communication			
		Written communication			
		Operating safely			
		Handling work stress			
		Being dependable and reliable			
		Conscientiousness/attention to detail			
		Persistence			
		Project planning			
		Leading, motivating, inspiring			
		Management/supervision			
		Entrepreneurship			

[a] Example anchors can be found in Chapter Three and Appendix C.

Figure D.2
Short Rating Form

Course Name: _____
Overall, how many days or weeks long is the training? _____

Mark the Top 5-7 MOST developed in the training	Mark the Top 5 LEAST developed in the training	Skill or Competency
		Decisionmaking
		Critical thinking
		Continuous learning
		Training others
		Teamwork/team-building
		Interpersonal skills
		Negotiation
		Oral communication
		Written communication
		Operating safely
		Handling work stress
		Being dependable and reliable
		Conscientiousness/attention to detail
		Persistence
		Project planning
		Leading, motivating, inspiring
		Management/supervision
		Entrepreneurship

How hard was it to provide these estimates? Why?

_____
_____
_____
_____
_____
_____
_____
_____

APPENDIX E

Training and Education Subject-Matter Expert Interview Protocol, September 2014

This appendix provides a description of the procedures used during the SME meetings with instructors and course developers. All SME meetings were held in person, although the process could be adapted to be videoteleconference or telephonic. Meetings took about two hours to complete.

Materials provided to participants during the meetings:

- **Skill definitions document** (shown in Table 2.5)
- **Skill level anchor document** (discussed in Appendix C). Note that the skill level anchors were difficult for participants to understand and ultimately did not yield useful data. We therefore recommend excluding them from future replications of this methodology.
- **Short rating forms** (shown in Appendix D)
- **Expanded rating forms** (shown in Appendix D). Note that the short rating form data proved more useful, and therefore we recommend excluding the expanded rating forms from future replications of this methodology.

Advance preparation:

- The research team familiarized themselves, with the course (via programs of instruction, lesson plans, other course materials)
- The skill description document (without the skill level anchors) and the short rating form were emailed to instructor participants a few days in advance of the meeting, and participants were asked to fill the rating form out in advance of the visit.

Protocol

I. Introductions (5 minutes)
   a. RAND researchers introduce themselves and roles.
   b. Introduction to the project.

II. Explanation of the goals of course coding (5 minutes)
   a. Estimate the top 5–7 nontechnical skills addressed by the course, and, through examples, learn the extent to which the skill is addressed.
   b. Estimate the "skill level" anchor that best describes each skill that the course seeks to develop in students.

c. Estimate what means are used to address the skill (practical application versus passive).
d. Seek high inter-rater agreement, such that different participants, following the same coding instructions, will arrive at similar results.
e. Learn how our process might be further developed so it can eventually be turned over to the Services to do many more courses.

III. Individual exercise (40 minutes)—discuss top 5–7 skills

a. Hand out copies of skill definitions and ask SMEs to review.
b. Hand out (or collect, if done in advance) copies of the worksheets for identifying top skills. Ask instructors to check off on their table the top 5–7 skills that the training addresses. Ask also for identification of the 5–7 LEAST-trained skills
   - If asked, define what we mean by "top skills": key skills trying to impart with training, based on the amount of time spent on them in total, the proportion of time spent on practical application, and how challenging the exercises are, etc. (They can also suggest their own criteria.)
c. RAND collects and tabulates, identifying top skills where high agreement, skills with only some agreement, and skills where contradictions (i.e., in someone's top five to seven and other's bottom five).
d. Discuss skills with high agreement with SMEs—why chosen, how they were developed, and what concrete examples they might offer to back up the choice. When warranted, ask for lesson plan or for other documentation for further clarification.
   - If relevant, discuss any differences between what instructors identify and what the RAND analyst identified prior to the meeting based on a review of lesson plans. Also, if SMEs have knowledge, discuss how the course under consideration differs from professional military education courses at other grade levels.
e. Discuss contradictions, trying to understand why they could occur. Take notes on explanations that might minimize such contradictions in the future.
f. (If time allows) Discuss skills in middle, where some training occurred.
g. Have we missed any nontechnical valued skills not yet captured?

IV. Break (10 minutes)

a. During the break, review instructors' results to determine whether there are any outstanding issues to address in the next exercise.

V. Group exercise (45 minutes)—Use anchors as vehicle for discussion

a. Hand out definitions for the skill anchors.
b. For each of the top skills identified in the first exercise (each considered one at a time), ask SMEs to read about the anchors and fill out expanded coding sheet.
   - For the [insert skill], which of the skill level descriptions best characterizes the kinds of activities students are able to do based on their course participation? If your answer is "somewhere in between," answer either "2" or "4" as applicable.
   - How much of the course is dedicated to developing students' [insert skill]? Please respond 0%, 25%, 50%, 75%, or 100%.

- To what extent does the course develop students' [insert skill] through practical application versus passive means like lectures, group discussions of [insert skill] and/or observations of others practicing [insert skill]? Please respond 100%/0%, 75%/25%, 50%/50%, 25%/75%, or 0%/100%, with practical application represented by the first number (e.g., 100%/0% would mean 100% of development was through practical application/0% was passive).

c. Discuss responses—why anchor chosen, what concrete examples they might offer to back up the choice, and why differences in ratings.

VI. Culminating individual exercise (15 minutes, time permitting)

a. Ask SMEs to fill out top 5–7 again (or describe how their decisions might have changed). Goal is to develop consensus on areas where there was a mixed opinion the first time around.
b. Ask candidates for example of training addressing each of their top five. These examples are intended to verify that their skill choices make sense and serve as the basis for illustrating how a skill is addressed in the final packet of materials. Again, collect any relevant documentation (or arrange for later delivery).
c. Ask for comments on process or feedback on anchors (what works and what does not, what did you like and not like, what is missing, etc.).

APPENDIX F

On-the-Job Experience Questionnaire Completed During Focus Groups, September 2016

SECTION 1: Information About You

1. **What is your Pay Grade?** *(Mark one)*
   - ☐ **E-1–E-2**
   - ☐ **E-3**
   - ☐ **E-4**
   - ☐ **E-5**
   - ☐ **E-6**
   - ☐ **E-7**
   - ☐ **E-8**
   - ☐ **E-9**

2. **What is your current duty MOS?** *(e.g., 11B, 88M)* _____

3. **What year where you born?** Year: _____

4. **Indicate the highest level of education that you have completed?** *(Mark one)*
   - ☐ **Less than a High School Diploma**
   - ☐ **High School Diploma** (or GED of High School Equivalence Certificate)
   - ☐ **Post-Secondary Certificate** – awarded for Training completed after high school (for example, in Personnel Services, Engineering-related Technologies, Vocational Home Economics, Construction Trades, Mechanics and Repairers, Precision Production Trades)
   - ☐ **Some College Courses**
   - ☐ **Associate's Degree** (or other 2-year degree)
   - ☐ **Bachelor's Degree**
   - ☐ **Post-Graduate Degree** (master's, MBA, law, MD, PhD or other post-graduate degree)

5. **What is your current position (e.g., squad leader, instructor, recruiter)**

   Specify: _____

6. **How typical is your current position compared to what most people in your grade and MOS generally do?" (Mark one)**
   - ☐ **Very Typical** (most jobs are like mine)
   - ☐ **Somewhat typical** (about half of the jobs are like mine)
   - ☐ **Not that typical** (fewer than a quarter of the jobs are like mine)
   - ☐ **Completely different** (nearly all the jobs are different than mine)

STOP

SECTION 2: Essential Skills

Please review the list of essential skills provided on the handout with the title "*List of Essential Nontechnical Skills and Competencies.*"

Can you think of any skills that were important in the positions you held over the last year that are missing from our list? If so, please name the skill and describe it.

Please do not provide any Personally Identifiable Information (PII).

Skill Name: _____
Skill Description:

_____
_____
_____
_____
_____
_____

Skill Name: _____
Skill Description:

_____
_____
_____
_____
_____
_____

Skill Name: _____
Skill Description:

_____
_____
_____
_____
_____
_____
_____

STOP

SECTION 3: FREQUENCY, IMPORTANCE, AND LEVEL REQUIRED

Part A: Using a scale from 0 to 5, how *frequently* have you used this skill in the positions you held over the last year?
Part B: Which skills are the *5 most frequently used* (Top 5) and which skills are the *5 least frequently used* (Bottom 5) in the positions you held over the last year? *(check 10 total)*

	Never	Rarely (a few times a year)	Occasionally (a few times a month)	Often (a few times a week)	Very Frequently (daily)	All the time (several times a day)	Top 5 Skills (Check)	Bottom 5 Skills (Check)
a. Decisionmaking/decisiveness	0	1	2	3	4	5		
b. Critical thinking	0	1	2	3	4	5		
c. Continuous learning	0	1	2	3	4	5		
d. Training others	0	1	2	3	4	5		
e. Teamwork and team-building	0	1	2	3	4	5		
f. Interpersonal skills	0	1	2	3	4	5		
g. Oral communication	0	1	2	3	4	5		
h. Written communication	0	1	2	3	4	5		
i. Operating safely	0	1	2	3	4	5		
j. Handling work stress	0	1	2	3	4	5		
k. Being dependable and reliable	0	1	2	3	4	5		
l. Conscientiousness/attention to detail	0	1	2	3	4	5		
m. Persistence	0	1	2	3	4	5		
n. Situational awareness	0	1	2	3	4	5		
o. Adaptability	0	1	2	3	4	5		
p. Project planning	0	1	2	3	4	5		
q. Leading, motivating, and inspiring others to accomplish organizational goals	0	1	2	3	4	5		
r. Managing/supervising others	0	1	2	3	4	5		
s. Behaving Ethically	0	1	2	3	4	5		

Part A: Using a scale from 1 to 5, how *important* is each skill to the performance in the positions you held over the last year?
Part B: Which skills are the *5 most important* (Top 5) and which skills are the *5 least important* (Bottom 5) in the positions you held over the last year? *(check 10 total)*

	Not at all Important	Slightly Important	Moderately Important	Very Important	Extremely Important	Top 5 Skills (Check)	Bottom 5 Skills (Check)
a. Decisionmaking/decisiveness	1	2	3	4	5		
b. Critical thinking	1	2	3	4	5		
c. Continuous learning	1	2	3	4	5		
d. Training others	1	2	3	4	5		
e. Teamwork and team-building	1	2	3	4	5		
f. Interpersonal skills	1	2	3	4	5		
g. Oral communication	1	2	3	4	5		
h. Written communication	1	2	3	4	5		
i. Operating safely	1	2	3	4	5		
j. Handling work stress	1	2	3	4	5		
k. Being dependable and reliable	1	2	3	4	5		
l. Conscientiousness and attention to detail	1	2	3	4	5		
m. Persistence	1	2	3	4	5		
n. Situational awareness	1	2	3	4	5		
o. Adaptability	1	2	3	4	5		
p. Project planning	1	2	3	4	5		
q. Leading, motivating, and inspiring others to accomplish organizational goals	1	2	3	4	5		
r. Managing/supervising the work of others	1	2	3	4	5		
s. Behaving Ethically	1	2	3	4	5		

Using a scale from 1 to 5, what *level* of each skill is needed to perform the duties associated with the positions you held over the last year? *Please consider this relative to all jobs, not just people in your grade and MOS.*

	None	Basic Understanding (only the most basic knowledge of techniques/concepts; just beginning to learn and practice the basics)	Novice (some skill at performing well, but still would benefit from help/advice to improve; working toward mastering the basics)	Intermediate (performing fairly well independently; but could still benefit from help/advice occasionally; has mastered most of the basics)	Advanced (no assistance needed to perform well; coaches others; considered "a person to ask")	Expert (can provide superior guidance, troubleshoot and answer questions. recognized as the authority and the "go to" person)
a. Decisionmaking/decisiveness	NA	1	2	3	4	5
b. Critical thinking	NA	1	2	3	4	5
c. Continuous learning	NA	1	2	3	4	5
d. Training others	NA	1	2	3	4	5
e. Teamwork and team-building	NA	1	2	3	4	5
f. Interpersonal skills	NA	1	2	3	4	5
g. Oral communication	NA	1	2	3	4	5
h. Written communication	NA	1	2	3	4	5
i. Operating safely	NA	1	2	3	4	5
j. Handling work stress	NA	1	2	3	4	5
k. Being dependable and reliable	NA	1	2	3	4	5
l. Conscientiousness and attention to	NA	1	2	3	4	5
m. Persistence	NA	1	2	3	4	5
n. Situational awareness	NA	1	2	3	4	5
o. Adaptability	NA	1	2	3	4	5
p. Project planning	NA	1	2	3	4	5
q. Leading, motivating, and inspiring others to accomplish organizational goals	NA	1	2	3	4	5
r. Managing/supervising the work of others	NA	1	2	3	4	5
s. Behaving Ethically	NA	1	2	3	4	5

SECTION 4: Experience in Using Skills

Think of a time when you had to use one of these skills on the job. Write the skill name below.

Skill: _____

Next, write a short outline (just list in a bullet point format) telling us what happened. Try to pick an example that is typical of the ways in which this skill is used in the job.

Also, please do not include anything that would identify yourself or others (like people's names) or provide any Personally Identifiable Information (PII).

I. What was the situation? Please give some context to why you needed to use the skill.

II. How did you use the skill? What did you do?

III. What was the result of you using this skill? What would have been the outcome if you did NOT use this skill?

At what grade level did you start encountering circumstances like the one you described?

_____

How, when and where did you learn the skill? Please do not provide any Personally Identifiable Information (PII).

_____

_____

_____

_____

_____

_____

What level of skill does this event illustrate? *(circle one)*

Basic Understanding (only the most basic knowledge of techniques/concepts; just beginning to learn and practice the basics)	**Novice** (some skill at performing well, but still would benefit from help/advice to improve; working toward mastering the basics)	**Intermediate** (performing fairly well independently; but could still benefit from help/advice occasionally; has mastered most of the basics)	**Advanced** (no assistance needed to perform well; coaches others; considered "a person to ask")	**Expert** (can provide superior guidance, troubleshoot and answer questions. recognized as the authority and the "go to" person)

On a scale from 1 to 5, what level of complexity does this event illustrate? *(circle one)*

1	2	3	4	5
Very Simple	**Somewhat Simple**		**Somewhat Complex**	**Very Complex**

Is this level of complexity in this skill typically required in your job? *(mark one)*

- ☐ Yes
- ☐ No, in my job the level of complexity required in this skill is typically **lower**
- ☐ No, in my job the level of complexity required in this skill is typically **higher**

How often do you encounter situations like this on your job? *(circle one)*

Never	**Rarely** (a few times a year)	**Occasionally** (a few times a month)	**Often** (a few times a week)	**Very Frequently** (daily)	**All the time** (several times a day)

STOP

APPENDIX G

On-the-Job Experience Survey of Frequency and Importance, September 2016

SECTION 1: Information About You

1. **What is your Pay Grade?** *(Mark one)*
   - ☐ **E-1–E-2**
   - ☐ **E-3**
   - ☐ **E-4**
   - ☐ **E-5**
   - ☐ **E-6**
   - ☐ **E-7**
   - ☐ **E-8**
   - ☐ **E-9**

2. **What is your current duty MOS?** *(e.g., 11B, 0331)* _____

3. **What year were you born?** Year: _____

4. **Are you male or female?**
   - ☐ Male
   - ☐ Female

5. **Indicate the highest level of education that you have completed.** *(Mark one)*
   - ☐ **Less than a High School Diploma**
   - ☐ **High School Diploma** (or GED of High School Equivalence Certificate)
   - ☐ **Post-Secondary Certificate** – awarded for Training completed after high school (for example, in Personnel Services, Engineering-related Technologies, Vocational Home Economics, Construction Trades, Mechanics and Repairers, Precision Production Trades)
   - ☐ **Some College Courses**
   - ☐ **Associate's Degree** (or other 2-year degree)
   - ☐ **Bachelor's Degree**
   - ☐ **Post-Graduate Degree** (master's, MBA, law, MD, PhD or other post-graduate degree)

6. **What is your current position?** (e.g., squad leader, platoon leader)

   Specify: _____**--FOR THE REMAINDER OF THIS SURVEY, WHEN WE ASK YOU ABOUT "YOUR POSITION" THIS IS WHAT WE ARE REFERRING TO**

7. **How long have you been in your current position?** _____ years _____ months

8. **How typical is your current position compared to what most people in your grade and MOS generally do?** *(Mark one)*
   - ☐ **Very Typical** (most jobs are like mine)
   - ☐ **Somewhat typical** (about half of the jobs are like mine)
   - ☐ **Not that typical** (fewer than a quarter of the jobs are like mine)
   - ☐ **Completely different** (nearly all the jobs are different than mine)

SECTION 2: Essential Skills

Please review the list of essential skills provided on the handout with the title "*List of Essential Nontechnical Skills and Competencies.*"

9. **Can you think of any skills that were important in the positions you held over the last year that are missing from our list?**
   - ☐ **No**
   - ☐ **Yes**

   If you selected yes, please name the skill and briefly describe it.

   Please do not provide any Personally Identifiable Information (PII).
   Skill Name: _____

   Skill Description:

   _____
   _____
   _____
   _____
   _____
   _____
   _____
   _____
   _____
   _____

SECTION 3: FREQUENCY RATINGS

Frequency refers to how often a skill is used.

10. Using a scale from 0 to 5, how ***frequently*** have you used each skill in your position? *(Position refers to what you wrote on page 2, question 5)*

	Never	Rarely (a few times a year)	Occasionally (a few times a month)	Often (a few times a week)	Very Frequently (daily)	All the time (several times a day)
a. Decisionmaking/decisiveness	0	1	2	3	4	5
b. Critical thinking	0	1	2	3	4	5
c. Continuous learning	0	1	2	3	4	5
d. Training others	0	1	2	3	4	5
e. Teamwork and team-building	0	1	2	3	4	5
f. Interpersonal skills	0	1	2	3	4	5
g. Oral communication	0	1	2	3	4	5
h. Written communication	0	1	2	3	4	5
i. Operating safely	0	1	2	3	4	5
j. Handling work stress	0	1	2	3	4	5
k. Being dependable and reliable	0	1	2	3	4	5
l. Conscientiousness and attention to detail	0	1	2	3	4	5
m. Persistence	0	1	2	3	4	5
n. Situational awareness	0	1	2	3	4	5
o. Adaptability	0	1	2	3	4	5
p. Project planning	0	1	2	3	4	5
q. Leading, motivating, and inspiring others to accomplish organizational goals	0	1	2	3	4	5
r. Managing/supervising the work of others	0	1	2	3	4	5
s. Behaving Ethically	0	1	2	3	4	5

SECTION 4: IMPORTANCE RATINGS

Importance refers to the significance of a skill. Importance differs from frequency because a skill may be critical to accomplishing one's job responsibilities *(importance)*, but only used occasionally *(frequency)*.

11. Using a scale from 1 to 5, how ***important*** is each skill to the performance in your position? *(Position refers to what you wrote on page 2, question 5)*

	Not at all Important	Slightly Important	Moderately Important	Very Important	Extremely Important
a. Decisionmaking/decisiveness	1	2	3	4	5
b. Critical thinking	1	2	3	4	5
c. Continuous learning	1	2	3	4	5
d. Training others	1	2	3	4	5
e. Teamwork and team-building	1	2	3	4	5
f. Interpersonal skills	1	2	3	4	5
g. Oral communication	1	2	3	4	5
h. Written communication	1	2	3	4	5
i. Operating safely	1	2	3	4	5
j. Handling work stress	1	2	3	4	5
k. Being dependable and reliable	1	2	3	4	5
l. Conscientiousness and attention to detail	1	2	3	4	5
m. Persistence	1	2	3	4	5
n. Situational awareness	1	2	3	4	5
o. Adaptability	1	2	3	4	5
p. Project planning	1	2	3	4	5
q. Leading, motivating, and inspiring others to accomplish organizational goals	1	2	3	4	5
r. Managing/supervising the work of others	1	2	3	4	5
s. Behaving Ethically	1	2	3	4	5

SECTION 5: TOP 5 MOST FREQUENT AND IMPORTANT SKILLS

	12. In your position, which skills are the 5 most *frequently* used? *(check 5 skills)*	13. In your position which skills are the 5 most *important*? *(check 5 skills)*
a. Decisionmaking/decisiveness		
b. Critical thinking		
c. Continuous learning		
d. Training others		
e. Teamwork and team-building		
f. Interpersonal skills		
g. Oral communication		
h. Written communication		
i. Operating safely		
j. Handling work stress		
k. Being dependable and reliable		
l. Conscientiousness and attention to detail		
m. Persistence		
n. Situational awareness		
o. Adaptability		
p. Project planning		
q. Leading, motivating, and inspiring others to accomplish organizational goals		
r. Managing/supervising the work of others		
s. Behaving Ethically		

END OF SURVEY

APPENDIX H

Example Course Overview

For illustration purposes, this appendix presents one of the course overview sections ("Army Basic Leader Course") included in the final prototype toolkits.

Army Basic Leader Course

Bottom Line

The Basic Leader Course (BLC) is the first course of study in the Army noncommissioned officer (NCO) Education System.[1] BLC provides a formal complement to students' on-the-job experience, providing structured development of the ability to lead and supervise a small group of workers as a first-line supervisor. Key valued nontechnical skills developed in this course include:

- Managing and supervising the work of others
- Teamwork and team-building
- Leading, motivating, and inspiring others to accomplish organizational goals
- Training others
- Interpersonal skills
- Decisionmaking/decisiveness
- Oral communications.

Students are not expected to master these skills. Rather, the course is designed to develop in each student the skills necessary to assume small-group leadership positions, in which they will continue to develop their skills through on-the-job experience.

Course Description

The BLC is a 22-day course that provides basic leadership training to support the transition from the follower/worker role to that of a junior NCO, who is a small-group leader/first-line

[1] NCOs are enlisted personnel who have achieved a rank of corporal (E-4) or higher. NCOs typically hold leadership positions over other enlisted personnel. BLC is taken by specialists (in preparation for becoming NCOs), corporals, or sergeants.

supervisor. The typical BLC student has just been promoted or is about to be promoted into a team leader role in which he or she will oversee about five other Soldiers. The course focuses on teaching basic leadership skills to students from all occupational specialties (including combat arms Soldiers, such as infantry, and support Soldiers, such as those with medical, maintenance, and administrative specialties).

The BLC is taught in a small-group environment of two instructors for every 16 students, facilitating student involvement and individual feedback. Exercises in which students engage in simulated combat-related situations and collaborative small-group (4–8) work efforts are used extensively. Students rotate through small-group leadership positions and are assessed on their leadership performance. Instructors engage each student individually to make the course as challenging as possible for each student. The low instructor-to-student ratio maximizes instructors' opportunities to provide formal and informal feedback and to otherwise mentor students and model skills.

Key Skills and Competencies Taught

Managing and Supervising the Work of Others

Almost all BLC lessons teach small-group supervisory skills, either passively, through lecture and conversation, or actively, through practical application. Lectures address supervision concepts and principles. During group exercises, as rotating team leaders, students must plan and direct the team's effort to successfully complete the exercise. For example, a small group might be confronted with a simulated combat situation that requires a series of actions, and the group leader must act in a supervisory capacity to decide which actions to take first and how to deal with unexpected events (for example, having to take care of a casualty). Student group leaders also practice supervisory skills when they oversee nontraining activities, such as cleaning work areas, that require delegation, and they must ensure that delegated tasks are completed correctly and on time.

Teamwork and Team-Building

Students must effectively work as members of a team throughout the BLC, while also rotating through team leader positions. The course encourages development of teamwork and team-building by making all team members responsible for the behavior of all other team members. If a team member arrives late for an exercise, is not dressed properly in uniform, or performs poorly in an exercise, the entire team bears the consequences. This ensures that team members engage with and support each other in accomplishing team tasks and that temporary team leaders encourage team-building. During the peer-teaching lesson, students who are experienced in one area are expected to work with students who need improvement in that area so that the team as a whole succeeds.

Training Others

The course teaches training principles and techniques through lectures, and students must then conduct classes and provide individual training sessions to their fellow students as graded exercises (for example, teaching other students to disassemble, clean, and assemble a rifle). Students also learn to collectively review and analyze team performance, identify areas for improvement, and discuss how the team's performance could be improved through what is

called the after-action review (AAR) process. An AAR is a performance-focused discussion of an event or exercise intended to facilitate Soldiers' self-discovery of how to sustain strengths and improve on weaknesses. During the course, students lead mock AARs, and instructors provide feedback.

Leading, Motivating, and Inspiring Others to Accomplish Organizational Goals

The BLC also includes opportunities for students to practice developing subordinates' skills and motivation. For example, students must prepare and conduct a graded mock developmental counseling session for a fellow student. One student role-plays the counseled Soldier based on provided background information, while another student counsels. The counselee and counselor discuss performance strengths and weaknesses and develop approaches for improvement, then the instructor evaluates the counselor's effectiveness and provides feedback. Each student conducts several counseling sessions, gaining an understanding of how to effectively counsel, as well as of the importance and benefits of doing so.

While the course teaches the leading and motivating of others, the lessons do not tend to teach inspirational skills and focus more on tasks than on goals.

Finally, the course is designed to shape students' views of leadership. For example, students are taught to conduct themselves by "being the example, so others can follow."

Interpersonal Skills

Students in the BLC have a wide range of specialties, come from many different types of units, and have a wide range of experiences and backgrounds. They must learn to work with people who do not share a common language and point of view. Instructors and peers evaluate students' interpersonal skills, providing each student with formal feedback on how other members of the team view the student's interpersonal skills.

Decisionmaking/Decisiveness

The BLC's practical exercises require students to continually make quick and decisive choices. In team leader roles, students practice giving orders and making and implementing decisions with confidence and authority—for example, regarding the exercises to be included in morning physical fitness sessions. Students also practice decisionmaking during the key developmental activity, described below.

Oral Communication

Throughout the course, students must express their ideas during classroom discussions and role-playing exercises. Each student must also research, prepare, and present a formal briefing on a significant military topic (for example, the role of the NCO during World War II). Students are formally evaluated and critiqued on their participation in classroom discussions, role-playing, and formal briefings.

Other Skills and Competencies Taught

Skills and competencies beyond those described above emphasized in this course include:

- **Written communication:** Several short, graded written assignments require correct grammar, clarity, completeness, and conciseness.
- **Planning** skills are required for success on individual and collective exercises (for example, students must plan for the developmental counseling session and describe the plan to the instructor).
- **Conscientiousness and attention to detail** are required throughout the course. For example, morning physical fitness training must align to prescribed standards, and student leaders are evaluated on how well other students follow their standards.
- **Being dependable and reliable:** The training schedules are demanding, and students must arrive precisely on time and in exactly the right uniform throughout the course.
- **Operating safely:** The course teaches students to identify safety risks and develop plans to mitigate these risks. The course outlines risk-mitigation actions for every activity.

Key Developmental Activity

The 36-hour field training exercise culminating activity provides students the opportunity to practice the key skills taught throughout the course and receive a leadership ability evaluation. Students organize into teams of five, led by a rotating student leader who is responsible for directing two teams. The teams and their rotating leaders prepare for and conduct a series of short, simple simulated combat missions, such as an attack of an enemy machine gun position or moving between two locations where there is a chance of an ambush.

Student leaders must develop a feasible plan to accomplish the mission, issue an order that clearly and completely communicates the plan, supervise preparations, and ensure that team members understand the plan and their role in it. Student leaders must also direct the actions and reactions of the team while executing the mission and conduct AARs of the team's performance at the end of each mission. Team members must work together effectively for mission success. Each student receives grades and counseling on his or her leadership performance.

APPENDIX I

Example On-the-Job Experience Vignettes

For illustrative purposes, this appendix presents one of the on-the-job experience vignette sections ("Decisionmaking/Decisiveness and Critical Thinking") included in the final prototype toolkits.

Decisionmaking/Decisiveness and Critical Thinking

Bottom Line

Decisionmaking/decisiveness tops the list of Tier I (top most critical) skills needed on the job at all job levels for both the Army and Marine Corps combat arms occupations examined. *Critical thinking*, a closely related skill area, was also among the most strongly endorsed critical skills.

Both of these nontechnical skills are conceptually similar, and the stories for each have considerable overlap. Therefore, we present examples for both skills together.

Definitions

Decisionmaking/decisiveness: Chooses the best solution or option in a timely and decisive manner, even in ambiguous situations and without assistance when appropriate. *(related terms: assertive, authoritative, resolving)*

Critical thinking: Actively and skillfully conceptualizes, applies, analyzes, synthesizes, and evaluates information to formulate options and to reach a conclusion. Demonstrates mental agility and the ability to reason, anticipate obstacles, identify problems, locate, gather, and organize relevant information, generate alternatives, evaluate and analyze information, and apply what is learned. *(related terms: analytic thinking, reasoning, argumentation, interpretation, problem solving)*

Overview

Although the consequences of ambiguous situations in most civilian occupations are not as grave as they are in the military (i.e., death), ambiguous situations do arise, and they can have

important consequences for an organization's bottom line. The stories below illustrate how military service members may often find themselves in uncertain circumstances, faced with difficult issues that demand thoughtful consideration and effective ways to respond. A military veteran may have had many similar opportunities to practice handling ambiguity during his or her time in service.

These examples illustrate themes such as the importance of seeking out important information, synthesizing multiple inputs, generating possible courses of action, and selecting and implementing the best course of action. In some of the stories, the circumstances allowed time for extensive research and deep analysis about a given challenge (*Example A: Innovative Techniques for Avoiding Roadside Explosives*); these stories illustrate a more deliberate decisionmaking process, known as risk management, that is widely used across the military services to help organizations and individuals balance risk (cost) with mission benefits.[1] In other stories, the circumstances allowed only for a brief pause to analyze the relevant factors before requiring immediate action (*Example C: After Being Attacked, Maintaining Clear Thinking*); these stories highlight the importance of arriving at swift and firm conclusions when time is of the essence. Although the circumstances and target of analysis will certainly differ between a military and civilian context, the cognitive activities associated with critical thinking and decisionmaking are similar.

Vignettes

A. Innovative Techniques for Avoiding Roadside Explosives (IEDs): Baby Powder and Glow Sticks [Army]

Situation: My battalion was deployed in a high-risk area with many roadside IEDs (i.e., a bomb constructed and deployed in unconventional ways).

Behavior: My platoon leader and I conducted a risk assessment and then developed novel techniques of avoiding IEDs: having Soldiers walk in a single-file line (instead of a "V" formation) and use innovative methods to mark safe pathways (baby powder during the day and glow sticks inside water bottles during the night).

Result: My platoon did not sustain a single IED casualty over the course of the nine-month deployment, so our methods were successful. For comparison, our battalion had upward of 30 amputees.

My team conducted most of our missions on foot in an area flush with IEDs. My platoon leader and I formed several strategies to keep our Soldiers safe. First, we located a mine sweeper to detect metal underground. Then we instructed our Soldiers to walk single-file instead of in the usual "V" formation to lessen the chances that a Soldier would trip an IED. During the day, we used baby powder to mark safe pathways, because the enemy wouldn't know what it was for and it blows away after a day or so. At night, we used glow sticks inside water bottles to mark safe pathways. Our methods were ultimately effective. My platoon was the only one with zero amputees, while my battalion had upward of 30. [Source: 19K Armor Soldier, E-6]

[1] Risk management is a five-step process: (1) identify hazards, (2) assess hazard to determine risk, (3) develop controls and make risk decisions, (4) implement controls, and (5) supervise and evaluate (Army Techniques Publication 5-19, *Risk Management*, Washington, D.C.: Department of the Army, April 14, 2014).

B. Orient, Observe, Decide, Act [Marine Corps]

Situation: My team was conducting a squad-supported training exercise with real ammunition, which meant that we had many different support teams working with us.

Behavior: To overcome various obstacles, I analyzed each situation, selected the best course of action, and appropriately positioned my Marines.

Result: We successfully completed the exercise by clearing the enemy and setting up a defensive position.

My team was conducting a live-fire maneuver with multiple weapon systems and support teams. Our mission was to take down an enemy defensive position. I was to receive an order, prepare my squad accordingly, and coordinate with machine gun and mortar teams. But I was also receiving updates from evaluators aimed at making the situation more difficult, so I had to constantly adapt and make quick decisions about where to position the teams and how to best use our assets. For instance, to demolish a wire obstacle between us and the enemy, I had my squad provide cover for the engineers so they could reach the obstacle and blow it up. For every decision, I followed the same steps: orient, observe, decide, and act. Using these strategies to actively problem solve, we were able to clear the enemy and hastily set up a defensive position. [Source: 0311 Infantry Marine, Squad Leader, E-4]

C. After Being Attacked, Maintaining Clear Thinking: Elderly Women in the Wrong Place at the Wrong Time [Army]

Situation: My platoon (approximately 30 Soldiers) was patrolling the main supply route when we were attacked by Iraqi civilians. Once we reached safety, my role was to stand security while others in my unit assessed the damage. I soon saw a figure approach us and, because it was night, I did not know if this individual was the enemy or not.

Behavior: Instead of acting rashly, I evaluated the behavior of the figure and immediately instructed our translator to talk to the person to determine her intentions.

Result: The figure ended up being an elderly woman who was lost. Even though the atmosphere was extremely tense, because we had just been attacked, I prevented the death of an innocent by thinking calmly.

During a deployment in Iraq, I patrolled our main supply route with 30 other Soldiers supporting my Stryker brigade [Strykers are eight-wheeled, armored vehicles]. It was Ramadan, so there were more people than usual walking through the streets. Some angry locals approached the Strykers aggressively. We repeatedly told them to stay back. However, they did not stop advancing. We were trying to deal with this situation when two of our vehicles got hit by rocket-propelled grenades (RPGs). The loud blast from the explosion to my Stryker made my ears ring, and my body was stunned. Our platoon proceeded through the hostile area, though, and when we reached a safer zone, we dismounted from [exited] our vehicles to inspect equipment damage and record any injuries. I was tasked with observing our surroundings and maintaining security. Shortly after I began my watch, I saw a figure walking towards us from about 100 meters away. The darkness of the night made it difficult to see, so I was unsure whether or not the individual was dangerous. Still shaken up from the RPG, I was very tense, and my initial inclination was to shoot. Instead, I chose to analyze the situation to best inform my next course of action. The Rules of Engagement [military authorization defining the circumstances in which forces may fire at the enemy] state that I cannot fire unless I have probable cause. The advancing individual had not yet demonstrated aggressive intent, so I made the decision to hold back. I called out "stop," but the person kept moving forward. I attached my sights [aiming optic] to my weapon and turned on my white light [flashlight weapon accessory] to get a better look. The individual was an elderly woman,

and her behavior appeared harmless. She could still pose a threat, however, as a suicide bomber. Life or death (for us and them) can be determined in a matter of seconds. Immediately, I decided to notify our interpreter, who yelled at her to walk in a different direction, which she eventually did. She was just at the wrong place at the wrong time. By thinking through and evaluating my circumstances, I was able to come to a solution that ultimately prevented the death of an innocent bystander. [Source: 11B Infantry Soldier, Rifleman, rank unknown][2]

D. Analyzing Multiple Factors: Selecting a Camp Site During Cold Weather Training [Marine Corps]

Situation: My battery conducted a cold weather training in Bridgeport, California.
Behavior: I evaluated my surroundings based on a few key variables and selected the optimal camp site and gear distribution.
Result: None of my Marines developed hypothermia.

My battery was conducting cold weather training in Bridgeport, California, where the Mountain Warfare Training Center is located. During a month-long training event, we had a three-day/three-night survival exercise. Each fire team of four Marines received only two sets of cold weather gear (e.g., sleeping bag), so two Marines had to share one set of cold weather gear. As the Local Security Chief, it was my responsibility to identify and select the most suitable place to set up camp. Camp site selection is very important. In evaluating the options, there were many variables to consider. For instance, we needed a place with enough snow, so that we would be able to dig out space large enough to escape the wind. We also needed a place close to a water supply, so we wouldn't have to melt snow, which takes time and heat. After doing a brief analysis of these variables, I chose a suitable space. I also decided on a plan for how to distribute the limited gear. While we rotated and/or shared these resources, I also examined which individuals were best suited to withstand the cold and gave these individuals the gear for shorter durations. Finally, I identified alternative methods to keep warm (e.g., I covered myself in pine needles). As a result of my careful deliberation regarding camp site selection and gear distribution, none of the Marines in our battery got hypothermia. The Marines in another unit that was deeper in the valley had seven cases of hypothermia. [Source: 0811 Artillery Marine, Local Security Chief, E-4]

E. When Understaffed, Devising a Strategy to Repel Enemy Forces [Marine Corps]

Situation: During a training exercise, my platoon of about 40 Marines was tasked with forming a defense against an opposing force. We were understaffed.
Behavior: I analyzed our best course of action and chose a defensive posture that was highly flexible. When the attack came, I provided the teams with further instructions as appropriate.
Result: The Chief in charge of the opposing force determined that we had successfully repelled their attack.

During a training exercise in Twentynine Palms [a military facility in California], my unit was tasked with occupying and defending an oversized base. We had a platoon of 40 Marines, but the base could have easily fit four platoons of 160 Marines. Later, we received intel [information] to expect an attack from a notional opposing force [other Marines acting as enemy combatants] with Armored Personnel Carriers [APCs; similar to tanks], machine guns, and gas. I determined the best course of action by analyzing the layout of the base,

[2] The rank of this source is unknown; however, subject-matter experts evaluated this story to apply to someone from the rank of E-1 to E-4.

the expected method of attack, and the available resources (equipment and personnel). Taking these factors into account, I decided it was best for my teams of Marines to build a defensive posture that was highly flexible. For example, I had a medium machine gun dismounted on the tallest tower so we could provide general watch of the area, I had a QRF [Quick Reaction Force] man a Humvee [light truck] with a 50-caliber machine gun to go wherever it was needed, and I had six guys on the main gate with me to repel an APC. I devised this plan and then took it to the platoon sergeant for review. After it was approved, I briefed my teams on their responsibilities. When the attack came, I provided the teams with further tasks and instructions as appropriate. As a result, the Chief in charge of the opposing force made the call that we had successfully repelled the enemy based on our reaction and how well coordinated we were. Had I not assessed the situation and determined that highly flexible concentrated precision forces were our best course of action, our defense would not have had the guidance or an adequate understanding of the larger situation to properly react. [Source: 0814, Assistant Platoon Leader/Local Security Chief, E-5]

APPENDIX J

On-the-Job Experience Survey Results: Supplemental Details

This appendix displays additional data that we used to create the on-the-job experience tables discussed in Chapter Five. It also provides further explanation about the process we followed to develop the overall criticality tables displayed in Chapter Five and that we ultimately used to summarize our findings in the final prototype toolkits (Hardison et al., 2017, McCausland et al., 2017).

Additional Frequency and Importance Data Tables

Importance and frequency results are presented separately in this section. Table J.0 provides a quick reference guide for how the results tables are ordered.

To facilitate comparisons to the tables in the main body of the report, the ordering of the nontechnical skills mirrors the ordering of the tables presented in Chapter Five, where reporting importance and frequency results are combined.

Table J.0
Quick Reference Guide to the Tables

	Army	Marine Corps
Top Five Selections		
Importance	Table J.1	Table J.3
Frequency	Table J.2	Table J.4
Likert Ratings		
Importance	Table J.5	Table J.7
Frequency	Table J.6	Table J.8

Table J.1
Army MOSs: Top 5 Importance Results (%)

	E-4				E-5					E-6			
	11B[a]	19K[b]	88M[c]	31B[d]	11B[a]	19K[b]	88M[c]	31B[d]	92Y[e]	11B[a]	88M[c]	31B[d]	92Y[e]
Nontechnical Skill	(*n*=110)	(*n*=20)	(*n*=21)	(*n*=55)	(*n*=42)	(*n*=35)	(*n*=65)	(*n*=41)	(*n*=22)	(*n*=23)	(*n*=21)	(*n*=58)	(*n*=33)
Decisionmaking/decisiveness	64	55	57	76	71	71	62	61	73	61	67	74	67
Training others	44	45	48	25	60	43	49	41	41	35	38	38	30
Leading, motivating, and inspiring others	33	45	43	33	48	54	34	44	36	43	33	36	48
Critical thinking	35	30	38	47	38	40	35	17	32	43	24	41	33
Being dependable and reliable	39	35	38	31	38	31	34	27	32	26	29	29	39
Oral communication	35	20	38	55	40	51	51	32	32	43	52	53	39
Situational awareness	40	45	43	33	38	17	15	17	14	35	24	22	18
Managing/supervising the work of others	11	25	24	11	38	34	29	22	36	26	29	31	30
Teamwork and team-building	46	50	57	42	43	17	26	27	32	30	24	26	30
Operating safely	28	40	57	20	26	20	15	20	0	13	38	17	18
Adaptability	29	40	29	33	40	31	26	32	23	17	19	28	24
Handling work stress	34	25	19	38	31	31	22	17	32	9	19	21	30
Continuous learning	31	35	24	24	29	20	14	29	41	17	14	21	21
Conscientiousness and attention to detail	25	30	19	15	21	9	9	17	14	17	10	16	18
Behaving ethically	7	20	14	20	19	14	18	32	5	17	19	22	15
Interpersonal skills	4	15	29	25	19	11	18	39	18	26	33	48	18
Project planning	6	15	19	5	14	3	8	12	23	17	14	22	9
Persistence	11	25	14	5	14	3	6	2	5	13	10	12	9
Written communication	5	15	10	15	10	3	25	10	14	9	10	21	21

NOTE: Dark green = 30% or greater; light green = 20% to 29.9%; yellow = less than 20%.
[a] Infantry Soldier; [b] Armor Soldier; [c] Motor Transport Soldier; [d] Military Police Soldier; [e] Unit Supply Soldier.

Table J.2
Army MOSs Top 5 Frequency Results (%)

	E-4				E-5					E-6			
	11B[a]	19K[b]	88M[c]	31B[d]	11B[a]	19K[b]	88M[c]	31B[d]	92Y[e]	11B[a]	88M[c]	31B[d]	92Y[e]
Nontechnical Skill	(*n*=107)	(*n*=20)	(*n*=20)	(*n*=54)	(*n*=41)	(*n*=35)	(*n*=66)	(*n*=41)	(*n*=22)	(*n*=23)	(*n*=20)	(*n*=57)	(*n*=32)
Decisionmaking/decisiveness	62	60	40	57	73	74	59	44	68	52	60	61	63
Training others	44	45	25	35	56	37	41	37	23	43	25	33	28
Leading, motivating, and inspiring others	38	50	35	24	37	34	30	41	64	35	45	44	47
Critical thinking	43	50	30	43	41	34	38	24	36	30	35	35	34
Being dependable and reliable	37	30	50	26	37	49	39	39	36	39	35	32	41
Oral communication	25	40	35	41	37	37	36	32	23	30	55	47	44
Situational awareness	43	45	40	26	41	23	20	29	23	35	15	19	13
Managing/supervising the work of others	21	40	20	13	24	31	20	22	32	39	35	21	28
Teamwork and team-building	43	60	55	35	46	26	44	34	27	26	25	23	22
Operating safely	28	55	75	28	39	40	24	27	9	13	30	19	19
Adaptability	30	35	20	20	34	20	24	24	41	30	35	39	31
Handling work stress	30	20	25	30	29	26	27	17	14	22	25	33	25
Continuous learning	30	35	30	30	27	20	27	29	36	17	15	23	38
Conscientiousness and attention to detail	22	10	15	19	17	17	12	12	14	26	15	14	9
Behaving ethically	13	15	25	22	22	20	23	32	23	22	20	32	19
Interpersonal skills	11	10	10	24	12	11	15	34	14	26	10	39	19
Project planning	10	10	20	9	10	11	11	2	0	9	20	9	3
Persistence	12	5	20	13	15	3	15	7	18	9	25	11	22
Written communication	8	15	5	15	5	3	18	10	27	4	20	16	19

NOTE: Dark green = 30% or greater; light green = 20% to 29.9%; yellow = less than 20%.

[a] Infantry Soldier; [b] Armor Soldier; [c] Motor Transport Soldier; [d] Military Police Soldier; [e] Unit Supply Soldier.

Table J.3
Marine MOSs: Top 5 Importance Results (%)

	E-4		E-5		E-6	
	03[a]	08[b]	03[a]	08[b]	03[a]	08[b]
Nontechnical Skill	(*n*=43)	(*n*=47)	(*n*=49)	(*n*=26)	(*n*=22)	(*n*=18)
Decisionmaking/decisiveness	67	60	78	62	73	67
Critical thinking	53	45	57	50	59	17
Being dependable and reliable	51	34	33	12	36	39
Training others	37	38	35	50	27	28
Leading, motivating, and inspiring others	33	26	27	38	27	22
Managing/supervising the work of others	19	26	29	38	36	17
Adaptability	19	13	33	15	32	28
Teamwork and team-building	33	23	18	19	9	44
Oral communication	26	36	22	12	36	22
Handling work stress	21	32	16	19	14	28
Operating safely	12	36	12	35	23	56
Situational awareness	35	26	33	35	36	33
Conscientiousness and attention to detail	26	19	27	38	14	28
Continuous learning	26	26	10	23	14	33
Behaving ethically	16	15	18	8	9	22
Interpersonal skills	7	17	6	15	9	11
Persistence	16	11	4	0	5	0
Project planning	5	6	10	4	18	11
Written communication	2	11	6	0	0	6

NOTE: Dark green = 30% or greater; light green = 20% to 29.9%; yellow = less than 20%.
[a] Infantry Marine.
[b] Artillery Marine.

Table J.4
Marine MOSs: Top 5 Frequency Results (%)

	E-4		E-5		E-6	
	03[a]	08[b]	03[a]	08[b]	03[a]	08[b]
Nontechnical Skill	(*n*=43)	(*n*=46)	(*n*=49)	(*n*=26)	(*n*=22)	(*n*=18)
Decisionmaking/decisiveness	60	67	73	77	64	61
Critical thinking	51	35	51	35	41	22
Being dependable and reliable	58	39	45	31	41	44
Training others	42	30	37	42	27	33
Leading, motivating, and inspiring others	33	22	33	35	36	22
Managing/supervising the work of others	35	35	6	38	45	56
Adaptability	40	15	37	23	27	33
Teamwork and team-building	30	39	18	23	18	17
Oral communication	28	46	31	23	32	33
Handling work stress	23	37	22	27	14	33
Operating safely	7	30	4	19	9	17
Situational awareness	19	26	24	27	18	17
Conscientiousness and attention to detail	16	15	20	15	45	22
Continuous learning	21	39	12	23	18	17
Behaving ethically	14	9	8	0	18	11
Interpersonal skills	12	7	16	12	14	11
Persistence	9	9	4	4	9	11
Project planning	2	7	4	12	14	11
Written communication	5	7	6	4	5	17

NOTE: Dark green = 30% or greater; light green = 20% to 29.9%; yellow = less than 20%.
[a] Infantry Marine.
[b] Artillery Marine.

Table J.5
Army Focal MOSs: Mean Importance Ratings

	E-4		E-5		E-6
	11B[a]	19K[b]	11B[a]	19K[b]	11B[a]
Nontechnical Skill	(*n*=111)	(*n*=20)	(*n*=42)	(*n*=35)	(*n*=26)
Being dependable and reliable	4.75	4.67	4.82	4.67	4.96
Conscientiousness and attention to detail	4.70	4.48	4.74	4.53	4.96
Situational awareness	4.76	4.71	4.84	4.36	4.81
Handling work stress	4.66	4.62	4.61	4.36	4.85
Decisionmaking and decisiveness	4.61	4.48	4.80	4.67	4.88
Adaptability	4.63	4.67	4.73	4.31	4.77
Leading, motivating, and inspiring others	4.46	4.48	4.64	4.53	4.70
Operating safely	4.45	4.67	4.52	4.28	4.78
Managing and supervising the work of others	4.29	4.33	4.55	4.42	4.81
Oral communication	4.44	4.24	4.56	4.33	4.81
Critical thinking	4.53	4.33	4.77	4.33	4.67
Teamwork and team-building	4.55	4.43	4.55	4.17	4.67
Training others	4.49	4.29	4.59	4.33	4.70
Behaving ethically	4.32	4.62	4.45	4.17	4.58
Persistence	4.47	4.52	4.44	3.89	4.67
Continuous learning	4.42	4.48	4.43	4.06	4.65
Interpersonal skills	4.18	4.25	4.30	3.81	4.78
Project planning	4.17	4.00	4.05	3.40	4.54
Written communication	3.75	3.52	3.86	3.39	4.35

NOTE: Importance ranged from 1 (not at all important) to 5 (extremely important). Dark green = 4.5 or greater; light green = 4.0 to 4.49; yellow = less than 4.0.

[a] Infantry Soldier.

[b] Armor Soldier.

Table J.6
Army Focal MOSs: Mean Frequency Ratings

	E-4		E-5		E-6
	11B[a]	19K[b]	11B[a]	19K[b]	11B[a]
Nontechnical Skill	(*n*=102)	(*n*=20)	(*n*=41)	(*n*=35)	(*n*=23)
Being dependable and reliable	4.68	4.62	4.86	4.68	4.85
Conscientiousness and attention to detail	4.67	4.62	4.75	4.46	4.88
Situational awareness	4.60	4.38	4.77	4.27	4.88
Handling work stress	4.42	4.38	4.58	4.38	4.67
Decisionmaking and decisiveness	4.32	4.29	4.70	4.64	4.81
Adaptability	4.55	4.24	4.77	4.22	4.59
Leading, motivating, and inspiring others	4.25	4.52	4.66	4.41	4.59
Operating safely	4.36	4.71	4.55	4.03	4.56
Managing and supervising the work of others	4.10	4.19	4.59	4.54	4.81
Oral communication	4.35	3.81	4.68	4.49	4.74
Critical thinking	4.17	4.10	4.34	4.19	4.65
Teamwork and team-building	4.23	4.19	4.59	3.97	4.73
Training others	4.18	3.95	4.45	4.14	4.77
Behaving ethically	4.23	4.29	4.30	4.14	4.77
Persistence	4.27	4.33	4.50	3.95	4.62
Continuous learning	4.16	4.14	4.14	3.84	4.40
Interpersonal skills	3.84	3.80	4.32	4.03	4.52
Project planning	3.74	3.48	3.65	3.14	4.33
Written communication	3.04	3.05	3.40	2.92	3.88

NOTE: Frequency ranged from 0 (never) to 5 (all the time). Dark green = 4.5 or greater; light green = 4.0 to 4.49; yellow = less than 4.0.

[a] Infantry Soldier.

[b] Armor Soldier

Table J.7
Marine MOSs: Mean Importance Ratings

	E-4		E-5		E-6	
	03[a]	08[b]	03[a]	08[b]	03[a]	08[b]
Nontechnical Skill	(*n*=44)	(*n*=47)	(*n*=49)	(*n*=23)	(*n*=20)	(*n*=16)
Being dependable and reliable	4.77	4.59	4.84	4.63	4.62	4.63
Situational awareness	4.68	4.57	4.70	4.42	4.73	4.74
Decisionmaking and decisiveness	4.70	4.49	4.80	4.63	4.82	4.58
Conscientiousness and attention to detail	4.82	4.49	4.70	4.62	4.45	4.47
Oral communication	4.57	4.37	4.38	4.30	4.59	4.42
Managing and supervising the work of others	4.23	4.51	4.32	4.62	4.45	4.26
Handling work stress	4.68	4.51	4.54	4.33	4.09	4.47
Adaptability	4.70	4.48	4.66	4.26	4.50	4.53
Operating safely	4.23	4.53	4.32	4.59	4.32	4.72
Critical thinking	4.66	4.33	4.54	4.30	4.64	4.32
Behaving ethically	4.41	4.33	4.40	4.11	4.14	4.21
Leading, motivating, and inspiring others	4.27	4.39	4.40	4.33	4.36	4.26
Persistence	4.55	4.16	4.32	4.22	3.91	4.16
Teamwork and team-building	4.45	4.29	4.46	4.22	4.00	4.26
Continuous learning	4.43	4.29	4.24	4.15	4.18	4.26
Training others	4.25	4.39	4.48	4.44	4.64	4.21
Interpersonal skills	4.18	4.12	4.14	4.04	3.91	3.76
Project planning	4.27	3.73	4.14	3.67	4.24	3.89
Written communication	3.91	3.39	3.47	3.31	3.50	3.79

NOTE: Importance ranged from 1 (not at all important) to 5 (extremely important). Dark green = 4.5 or greater; light green = 4.0 to 4.49; yellow = less than 4.0.

[a] Infantry Marine.

[b] Artillery Marine.

Table J.8
Marine MOSs: Mean Frequency Ratings

	E-4		E-5		E-6	
	03[a]	08[b]	03[a]	08[b]	03[a]	08[b]
Nontechnical Skill	(*n*=39)	(*n*=45)	(*n*=47)	(*n*=22)	(*n*=21)	(*n*=16)
Being dependable and reliable	4.77	4.57	4.71	4.58	4.86	4.74
Situational awareness	4.59	4.57	4.53	4.30	4.41	4.67
Decisionmaking and decisiveness	4.36	4.31	4.57	4.52	4.50	4.61
Conscientiousness and attention to detail	4.61	4.43	4.63	4.44	4.68	4.50
Oral communication	4.55	4.43	4.49	4.54	4.73	4.68
Managing and supervising the work of others	4.00	4.43	4.37	4.77	4.64	4.63
Handling work stress	4.25	4.38	4.51	4.30	4.32	4.50
Adaptability	4.55	4.30	4.27	4.00	4.23	4.32
Operating safely	4.00	4.51	3.92	4.08	4.00	4.58
Critical thinking	4.20	3.94	4.20	4.00	4.36	4.28
Behaving ethically	4.57	4.29	4.26	4.41	4.45	4.58
Leading, motivating, and inspiring others	3.98	4.35	4.24	4.37	4.32	4.32
Persistence	4.34	4.33	4.24	3.96	4.32	4.42
Teamwork and team-building	4.07	4.20	4.12	4.15	4.23	3.89
Continuous learning	4.16	3.98	4.02	3.85	3.77	4.17
Training others	3.63	4.35	4.14	4.22	4.32	4.18
Interpersonal skills	4.00	4.02	4.18	4.15	4.36	4.17
Project planning	3.68	3.46	3.58	3.44	3.82	3.83
Written communication	3.36	2.86	3.12	2.85	3.43	3.94

NOTE: Frequency ranged from 0 (never) to 5 (all the time). Dark green = 4.5 or greater; light green = 4.0 to 4.49; yellow = less than 4.0.

[a] Infantry Marine.

[b] Artillery Marine.

Describing the Systematic Process to Determine Criticality

As noted in the main body of the report, an important product of this work is to offer one overall table summarizing the criticality results for each service (i.e., combining the top five criticality and Likert criticality results) that eliminates statistical jargon and can be readily understood by a wide audience, including civilian employers.

However, creating such an overall summary table presented some challenges. First, combining two distinct forms of evaluations (top five criticality results and Likert criticality results) was not straightforward because, among other reasons, they are on different entirely different scales (one result involves proportions, and the other involves mean Likert ratings). Second, we wanted to represent the broad conclusions of the data without drawing attention to practically insignificant differences (e.g., the difference between 4.75 and 4.74). We arrived at a process for addressing both of these issues that includes five steps:

Step 1: Conversion to a 3-Point Scale. To place both forms of evaluation (the top five criticality and Likert criticality results) on the same scale, we converted results for each to a three-point scale using the same cutoffs that we used for the shades of green shown in the tables. That is:

- Dark green (30% or greater; 4.5 or greater) = 2
- Light green (20% to 29.9%; 4.0 to 4.49) = 1
- Yellow (less than 20%; less than 4.0) = 0.

This process is illustrated in Figure J.1, where the cells in the table shown on the left are converted into cells containing scores of 0, 1, or 2.

Step 2: Combining the 3-Point Scale Results for Top Five and Likert Criticality. Once the top five and Likert criticality results were on the same three-point scale, we then summed the results. We did not, however, use a simple sum. While we believed both sources of data were relevant, we considered the top five criticality results more relevant than the Likert criticality results in making distinctions about rank ordering of criticality because we forced participants to select only the five most important and frequently used skills. As discussed in the main body of the report, when we examined the Likert criticality ratings, a few skills noticeably changed in their rank-order standing. We therefore did not want to disregard that information in our final summative table. As a result, we opted to double-weight the top five results relative to the Likert criticality results when combining the two sets of three-point scale results.

The weighted sum calculation for each cell in the table is as follows:

$$\text{Overall Criticality Score} = \text{Converted Top 5 Criticality Percentage} * 2 + \text{Converted Likert Criticality Ratings}$$

This weighted sum calculation process is illustrated in Figure J.2. When the top five and Likert criticality ratings are combined, the result is a table with scores that can range from 0 to 6.

Figure J.1
Example of Step 1: Conversion Using Table 5.3

	Table 5.3: Army Focal MOSs: Top 5 Criticality Percentage					Conversion to 3-Point Scale				
	E-4		E-5		E-6	E-4		E-5		E-6
	11B	19K	11B	19K	11B	11B	19K	11B	19K	11B
Nontechnical Skill	(*n*≈107)	(*n*≈20)	(*n*≈41)	(*n*≈35)	(*n*≈23)	(*n*≈107)	(*n*≈20)	(*n*≈41)	(*n*≈35)	(*n*≈23)
Decisionmaking/decisiveness	63	58	72	73	57	2	2	2	2	2
Training others	44	45	58	40	39	2	2	2	2	2
Leading, motivating, and inspiring others	36	48	***42***	***44***	39	2	2	2	2	2
Critical thinking	39	***40***	40	37	***37***	2	2	2	2	2
Being dependable and reliable	38	33	37	***40***	***33***	2	2	2	2	2
Oral communication	30	***30***	39	***44***	***37***	2	2	2	2	2
Situational awareness	41	45	40	20	35	2	2	2	1	2
Managing/supervising the work of others	***16***	***33***	***31***	33	***33***	0	2	2	2	2
Teamwork and team-building	45	***55***	45	21	28	2	2	2	1	1
Operating safely	28	***48***	33	***30***	13	1	2	2	2	0
Adaptability	29	38	37	***26***	***24***	1	2	2	1	1
Handling work stress	32	23	30	29	***15***	2	1	2	1	0
Continuous learning	30	35	28	20	17	2	2	1	1	0
Conscientiousness and attention to detail	24	***20***	19	13	22	1	1	0	0	1
Behaving ethically	10	18	20	17	20	0	0	1	0	1
Interpersonal skills	7	13	16	11	26	0	0	0	0	1
Project planning	8	13	12	7	13	0	0	0	0	0
Persistence	12	***15***	14	3	11	0	0	0	0	0
Written communication	7	15	7	3	7	0	0	0	0	0

RAND *RR1919-J.1*

Figure J.2
Example of Step 2: Combining Top Five and Likert Criticality Ratings with Army Focal MOSs

	Converted 3-Point Scale from Table 5.3: Army Focal MOSs: Top 5 Criticality Percentage					(×2) +	Adapted 3-Point Scale from Table 5.6: Army Focal MOSs: Likert Criticality Rating					=	Initial Criticality Score (Weighted Combination of Average *Top Five* Selections and *Likert Ratings*)				
	E-4		E-5		E-6		E-4		E-5		E-6		E-4		E-5		E-6
	11B	19K	11B	19K	11B		11B	19K	11B	19K	11B		11B	19K	11B	19K	11B
Nontechnical Skill	(*n*≈107)	(*n*≈20)	(*n*≈41)	(*n*≈35)	(*n*≈23)		(*n*≈107)	(*n*≈20)	(*n*≈41)	(*n*≈35)	(*n*≈23)		(*n*≈107)	(*n*≈20)	(*n*≈41)	(*n*≈35)	(*n*≈23)
Decisionmaking/decisiveness	2	2	2	2	2		1	1	2	2	2		5	5	6	6	6
Training others	2	2	2	2	2		1	1	2	1	2		5	5	6	5	6
Leading	2	2	2	2	2		1	2	2	1	2		5	6	6	5	6
Critical thinking	2	2	2	2	2		1	1	2	1	2		5	5	6	5	6
Being dependable and reliable	2	2	2	2	2		2	2	2	2	2		6	6	6	6	6
Oral communication	2	2	2	2	2		1	1	2	1	2		5	5	6	5	6
Situational awareness	2	2	2	1	2		2	2	2	1	2		6	6	6	3	6
Managing/supervising	0	2	2	2	2		1	1	2	1	2		1	5	6	5	6
Teamwork and team-building	2	2	2	1	1		1	1	2	1	2		5	5	6	3	4
Operating safely	1	2	2	2	0		1	2	2	1	2		3	6	6	5	2
Adaptability	1	2	2	1	1		2	1	2	1	2		4	5	6	3	4
Handling work stress	2	1	2	1	0		2	2	2	1	2		6	4	6	3	2
Continuous learning	2	2	1	1	0		1	1	1	0	2		5	5	3	2	2
Conscientiousness	1	1	0	0	1		2	2	2	1	2		4	4	2	1	4
Behaving ethically	0	0	1	0	1		1	1	1	1	2		1	1	3	1	4
Interpersonal skills	0	0	0	0	1		1	1	1	0	2		1	1	1	0	4
Project planning	0	0	0	0	0		0	0	0	0	1		0	0	0	0	1
Persistence	0	0	0	0	0		1	1	1	0	2		1	1	1	0	2
Written communication	0	0	0	0	0		0	0	0	0	1		0	0	0	0	1

RAND *RR1919-J.2*

Step 3: Translating Back to a Three-Point Scale. To simplify the results of Step 2, we again converted the results back to a three-point scale as follows:

- 5 and 6 converted to a 3
- 3 and 4 converted to a 2
- 0, 1, and 2 converted to a 1.

Step 4: Rank-Ordering the Skills in the Final Tables. To rank-order the nontechnical skills in the tables, we calculated the average across the Army and the average across the Marine Corps. Those two averages were then averaged again to arrive at an equally weighted mean across both the Army and Marine Corps. The skills were ordered in Table J.9 using this equally weighted mean. Ties were broken by going back to the original rank ordering of the top five criticality proportions before they were converted and averaging those across both the Marine Corps and Army results.

Step 5: Converting the Three-Point Scale to a Graphic Symbol. To enhance the readability of the results in the table, we next converted numbers to symbols to display the three levels of criticality:

■ = Top most critical skills

□ = Next most critical skills

✳ = Remaining critical skills.

This conversion process is illustrated in Figure J.4.

Step 6: Grouping Skills into Tiers. To provide a global view of the overall results, we grouped the skills according to the overall findings across all of the Army and Marine Corps jobs and rank groups we explored. Based on a visual inspection of the Army and Marine Corps tables resulting from Step 5, we formed three tiers. Tier I comprises the skills that overall were primarily rated as top most critical or next most critical. Tier II comprises skills that overall showed more variation in criticality ratings. Tier III comprises the skills that remained.[1] These tiers are displayed in Table J.10 and in Tables 5.8 and 5.9 of the main body of the report.

Step 7: Confirming That the Big Picture Results Are Represented. Lastly, we went back to the original tables of top five criticality percentages and Likert criticality ratings that were presented in Chapter Five and visually compared those results to the final graphic display and the tier groupings (i.e., Table J.10). We looked to confirm that the overall picture displayed in the original results was consistent with the final graphic display. That is, we looked to confirm that the skills that were at the top of the list in either the top five or the Likert criticality ratings were in Tier I in the graphic display. We also looked to confirm that those skills at the bottom of the list were located in the third tier in the graphic display. With this confirmed, we moved forward with the display and added it to the final materials.

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[1] As noted in the main body of the report, even though the Tier III skills were at the bottom of the list, on average, they were all still evaluated to be at least moderately important and used at least a few times a week in every job we examined, and, in some cases, ratings of importance and frequency were even higher than that. As such, the inclusion of the star symbol and the labeling of it as "remaining critical skills" is deliberate and intended to communicate to employers and veterans who will be reviewing the findings in the table that those skills are still viewed as critical, even if less so than others in the list.

Figure J.3
Example of Step 3: Revised Criticality Score

	Initial Criticality Score					Revised Criticality Score				
	E-4		E-5		E-6	E-4		E-5		E-6
	11B	19K	11B	19K	11B	11B	19K	11B	19K	11B
Nontechnical Skill	(*n*≈107)	(*n*≈20)	(*n*≈41)	(*n*≈35)	(*n*≈23)	(*n*≈107)	(*n*≈20)	(*n*≈41)	(*n*≈35)	(*n*≈23)
Decisionmaking/decisiveness	5	5	6	6	6	3	3	3	3	3
Training others	5	5	6	5	6	3	3	3	3	3
Leading, motivating, and inspiring others	5	6	6	5	6	3	3	3	3	3
Critical thinking	5	5	6	5	6	3	3	3	3	3
Being dependable and reliable	6	6	6	6	6	3	3	3	3	3
Oral communication	5	5	6	5	6	3	3	3	3	3
Situational awareness	6	6	6	3	6	3	3	3	2	3
Managing/supervising the work of others	1	5	6	5	6	1	3	3	3	3
Teamwork and team-building	5	5	6	3	4	3	3	3	2	2
Operating safely	3	6	6	5	2	2	3	3	3	1
Adaptability	4	5	6	3	4	2	3	3	2	2
Handling work stress	6	4	6	3	2	3	2	3	2	1
Continuous learning	5	5	3	2	2	3	3	2	1	1
Conscientiousness and attention to detail	4	4	2	1	4	2	2	1	1	2
Behaving ethically	1	1	3	1	4	1	1	2	1	2
Interpersonal skills	1	1	1	0	4	1	1	1	1	2
Project planning	0	0	0	0	1	1	1	1	1	1
Persistence	1	1	1	0	2	1	1	1	1	1
Written communication	0	0	0	0	1	1	1	1	1	1

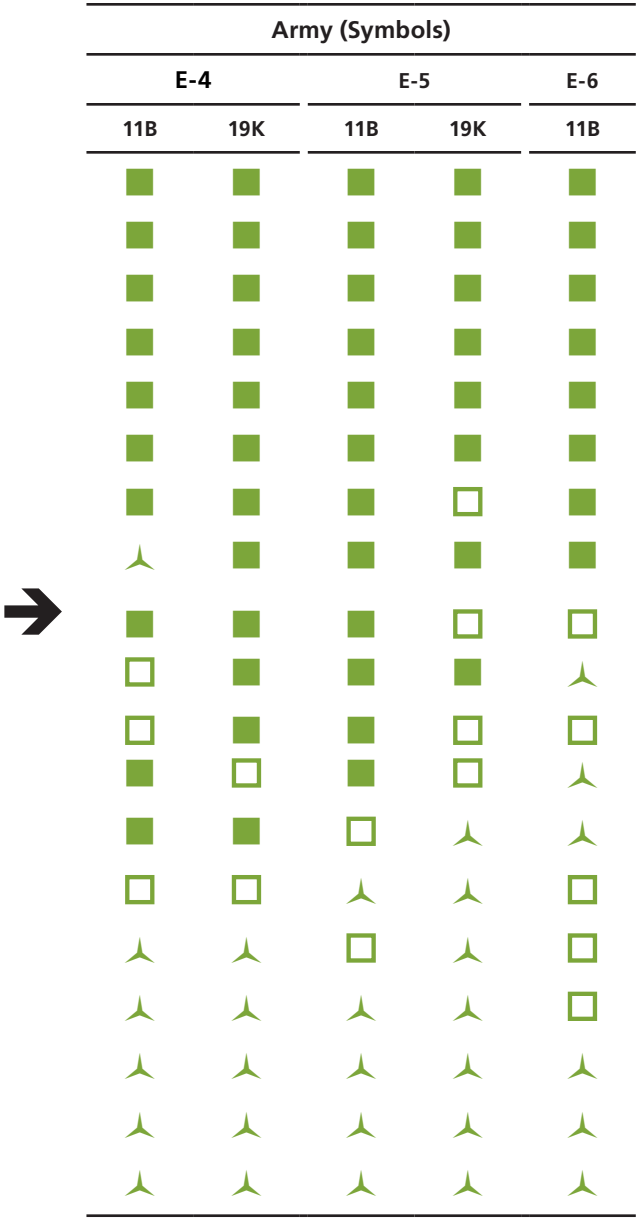
RAND *RR1919-J.3*

Table J.9
Step 4: Determining the Rank Order

	Army						Marine Corps							
	E-4		E-5		E-6		E-4		E-5		E-6			
Nontechnical Skill	11B	19K	11B	19K	11B	Mean	03	08	03	08	03	08	Mean	Total Mean
Decisionmaking/decisiveness	3	3	3	3	3	3.00	3	3	3	3	3	3	3.00	3.00
Being dependable and reliable	3	3	3	3	3	3.00	3	3	3	2	3	3	2.83	2.92
Critical thinking	3	3	3	3	3	3.00	3	3	3	3	3	1	2.67	2.83
Leading, motivating, and inspiring others	3	3	3	3	3	3.00	3	2	3	3	3	2	2.67	2.83
Training others	3	3	3	3	3	3.00	2	3	3	3	2	3	2.67	2.83
Oral communication	3	3	3	3	3	3.00	2	3	2	1	3	2	2.17	2.58
Managing/supervising the work of others	1	3	3	3	3	2.60	2	3	1	3	3	3	2.50	2.55
Situational awareness	3	3	3	2	3	2.80	2	2	2	3	2	2	2.17	2.48
Teamwork and team-building	3	3	3	2	2	2.60	3	3	1	2	1	3	2.17	2.38
Adaptability	2	3	3	2	2	2.40	2	1	3	1	3	3	2.17	2.28
Operating safely	2	3	3	3	1	2.40	1	3	1	2	1	3	1.83	2.12
Handling work stress	3	2	3	2	1	2.20	2	3	1	2	1	3	2.00	2.10
Continuous learning	3	3	2	1	1	2.00	2	3	1	2	1	2	1.83	1.92
Conscientiousness and attention to detail	2	2	1	1	2	1.60	2	1	2	2	3	2	2.00	1.80
Behaving ethically	1	1	2	1	2	1.40	1	1	1	1	1	1	1.00	1.20
Interpersonal skills	1	1	1	1	2	1.20	1	1	1	1	1	1	1.00	1.10
Persistence	1	1	1	1	1	1.00	1	1	1	1	1	1	1.00	1.00
Project planning	1	1	1	1	1	1.00	1	1	1	1	1	1	1.00	1.00
Written communication	1	1	1	1	1	1.00	1	1	1	1	1	1	1.00	1.00

Figure J.4
Example of Step 5: Converting Numbers to Graphic Symbols

	Army (Numbers)				
	E-4		E-5		E-6
Nontechnical Skill	11B	19K	11B	19K	11B
Decisionmaking/decisiveness	3	3	3	3	3
Training others	3	3	3	3	3
Leading, motivating, and inspiring others	3	3	3	3	3
Critical thinking	3	3	3	3	3
Being dependable and reliable	3	3	3	3	3
Oral communication	3	3	3	3	3
Situational awareness	3	3	3	2	3
Managing/supervising the work of others	1	3	3	3	3
Teamwork and team-building	3	3	3	2	2
Operating safely	2	3	3	3	1
Adaptability	2	3	3	2	2
Handling work stress	3	2	3	2	1
Continuous learning	3	3	2	1	1
Conscientiousness and attention to detail	2	2	1	1	2
Behaving ethically	1	1	2	1	2
Interpersonal skills	1	1	1	1	2
Project planning	1	1	1	1	1
Persistence	1	1	1	1	1
Written communication	1	1	1	1	1



RAND *RR1919-J.4*

Table J.10
Final Table of Criticality for the Prototype Toolkits

		Army					Marine Corps					
		E-4		E-5		E-6	E-4		E-5		E-6	
Tier	Nontechnical Skill	11B (n≈43)	19K (n≈46)	11B (n≈49)	19K (n≈26)	11B (n≈22)	03 (n≈43)	08 (n≈46)	03 (n≈49)	08 (n≈26)	03 (n≈22)	08 (n≈18)
I	Decisionmaking/decisiveness	■	■	■	■	■	■	■	■	■	■	■
	Being dependable and reliable	■	■	■	■	■	■	■	■	□	■	■
	Critical thinking	■	■	■	■	■	■	■	■	■	■	⅄
	Leading, motivating, and inspiring others	■	■	■	■	■	■	□	■	■	■	□
	Training others	■	■	■	■	■	□	■	■	■	□	■
	Oral communication	■	■	■	■	■	□	■	□	⅄	■	□
	Managing/supervising the work of others	⅄	■	■	■	■	□	■	⅄	■	■	■
	Situational awareness	■	■	■	□	■	□	□	□	■	□	□
II	Teamwork and team-building	■	■	■	□	□	■	■	⅄	□	⅄	■
	Adaptability	□	■	■	□	□	□	⅄	■	⅄	■	■
	Operating safely	□	■	■	■	⅄	⅄	■	⅄	□	⅄	■
	Handling work stress	■	□	■	□	⅄	□	■	⅄	□	⅄	■
	Continuous learning	■	■	□	⅄	⅄	□	■	⅄	□	⅄	□
	Conscientiousness and attention to detail	□	□	⅄	⅄	□	□		□	□	■	□

Table J.10—continued

Tier	Nontechnical Skill	Army					Marine Corps					
		E-4		E-5		E-6	E-4		E-5		E-6	
		11B (n≈43)	19K (n≈46)	11B (n≈49)	19K (n≈26)	11B (n≈22)	03 (n≈43)	08 (n≈46)	03 (n≈49)	08 (n≈26)	03 (n≈22)	08 (n≈18)
III	Behaving ethically	⅄	⅄	□	⅄	□	⅄	⅄	⅄	⅄	⅄	⅄
	Interpersonal skills	⅄	⅄	⅄	⅄	□	⅄	⅄	⅄	⅄	⅄	⅄
	Persistence	⅄	⅄	⅄	⅄	⅄	⅄	⅄	⅄	⅄	⅄	⅄
	Project planning	⅄	⅄	⅄	⅄	⅄	⅄	⅄	⅄	⅄	⅄	⅄
	Written communication	⅄	⅄	⅄	⅄	⅄	⅄	⅄	⅄	⅄	⅄	⅄

APPENDIX K

Reports Synthesized in *Education for Life and Work: Developing Transferable Knowledge and Skills in the 21st Century* (NRC, 2012)

The NRC published a report in 2012 entitled *Education for Life and Work: Developing Transferable Knowledge and Skills in the 21st Century* that synthesizes quite exhaustively the industrial/organizational, education, economics, behavioral psychology, business, and other disciplinary literatures on valued skills (the authors use the term *21st century competencies*, while we use the term *nontechnical skills*). The 2012 NRC report synthesizes the following reports on valued skills:

- Association for Career and Technical Education, *What Is "Career Ready"?* Alexandria, Va.: Association for Career and Technical Education, 2010. As of April 4, 2017: https://www.acteonline.org/general.aspx?id=1964#.VE_Ukuf97eY
- W. L. Bedwell, E. Salas, and S. M. Fiore, "Developing the 21st Century (and Beyond) Workforce: A Review of Interpersonal Skills and Measurement Strategies," paper prepared for the NRC Workshop on Assessing 21st Century Skills, October 2011.
- M. Binkley, O. Erstad, J. Herman, S. Raizen, M. Ripley, and M. Rumble, *Defining 21st Century Skills*, white paper commissioned for the Assessment and Teaching of 21st Century Skills Project (ATC21S), 2010.
- David T. Conley, *Redefining College Readiness*, Eugene, Ore.: Educational Policy Improvement Center, 2007. As of April 4, 2017: http://www.epiconline.org/redefining-college-readiness/
- David Finegold and Alexis Spencer Notabartolo, *21st Century Competencies and Their Impact: An Interdisciplinary Literature Review*, paper commissioned for the National Research Council project "Research on 21st Century Competencies: A Planning Process on Behalf of the Hewlett Foundation," 2010. As of April 4, 2017: http://www.hewlett.org/library/21st-century-competencies-impact-interdisciplinary-literature-review/
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Lists of Figures and Tables

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Tables

Abbreviations

BLC	Basic Leader Course
CLIMB	Civilian Leader Improvement Battery
DoD	U.S. Department of Defense
DoL	U.S. Department of Labor
KSAO	knowledge, skills, attitudes, and other characteristics
MOS	military occupational specialty
MOSAIC	Multipurpose Occupational Systems Analysis Inventory–Close-Ended
NCO	noncommissioned officer
O*NET	Occupational Information Network
OPM	U.S. Office of Personnel Management
OSD	Office of the Secretary of Defense
POC	point of contact
SME	subject-matter expert
TAP	Transition Assistance Program
TVPO	Transition to Veterans Program Office
VA	U.S. Department of Veterans Affairs
VMET	Verification of Military Employment and Training
VOW	Veterans Opportunity to Work

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https://www.naceweb.org/uploadedFiles/Pages/knowledge/diversity/
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Civilian employers may not appreciate the full value veterans can bring to their organizations, because military and civilian workplace cultures and languages can seem radically different from one another. To address this, the authors of this report developed prototype toolkits that veterans, especially those in Army and Marine Corps enlisted combat arms occupations, can use to translate and describe their skills to potential civilian employers and that civilian employers can use to understand veteran job applicants' skills.

In this report, the authors describe their methodology for developing the toolkits. In the first phase of the study, the authors developed a list of essential workplace skills, then created materials that show how these skills are developed through formal military training and education courses. In the second phase, they added to the list of essential workplace skills and expanded the materials to include vignettes illustrating how these skills are developed through military service members' on-the-job experience. The authors offer a number of insights on how the method could be improved and how it could be potentially applied to develop similar materials for broader groups of veterans.

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