U.S. Army Command Sgt. Maj. Craig Owens, command sergeant major of the 200th Military Police Command, U.S. Army Reserve, leads a team-building ruck march wearing protective masks with command sergeants major from his brigades and battalions in Scottsdale, Ariz., Sept. 16, 2017. (U.S. Army photo by Master Sgt. Michel Sauret)

The Psychological Intangibles of Soldier Readiness

Part I: The Concept

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The U.S. Army has traditionally excelled at preparing its Soldiers, tactically and technically, for the rigors of combat. Yet the trend in contemporary warfare demands that attention and importance also be paid to the human dimension, as well as the tactical, in order to best prepare for the future fight.

A U.S. Army Soldier rappels a cliff face on Smugglers' Notch in Jeffersonville, Vt., Feb. 18, 2016. The rappel was during the Mountain Walk, a culminating event for basic and advanced mountain warfare students, to use the skills taught at the Mountain Warfare School. (U.S. Army photo by Staff Sgt. Nathan Rivard, 172nd Public Affairs Detachment)

Recent doctrine continues to emphasize the need to maximize human potential and to understand the human factors/elements for multi-domain operations (Department of the Army, 2018). These articles describe research conducted to help define the requisite Soldier attributes needed for sustained mission performance during combat operations.

The U.S. Army's *ADP 6-0: Mission Command* describes war as the following:

> *War is a human endeavor—a clash of wills characterized by the threat or application of force and violence, often fought among populations. It is not a mechanical process that can be precisely controlled by machines, calculations, or processes. Nor is it conducted in carefully controlled and predictable environments. Fundamentally, all war is about changing human behavior. It is both a contest of wills and a contest of intellect between two or more sides in conflict, with each trying to alter the behavior of the other side.* (Department of the Army, 2019, p. 1-1)

For the purposes of conducting the research, the authors used the adjective *intangible* to describe psychological concepts that contribute to Soldier mission readiness across the human dimension. Intangible psychological concepts include adaptability, self-awareness, sense-making, warrior ethos, confidence, resilience, moral ethical judgment, among others.

A number of programs have already been developed to train and enhance performance in the psychological intangibles realm. Action has also been taken at the Combat Training Centers and home station training environment to better integrate aspects of the human dimension into existing tactical training exercises.

Noncommissioned officers (NCOs) in brigade combat teams (BCT) are presented with a myriad of programs and ideas about how to best train their Soldiers for the rigors of contemporary warfare's human dimension. Given limited time, and a large number of individual and collective tactical and technical training tasks to accomplish, NCOs could benefit from a research-based prioritization and implementation plan for efficient and effective training on intangible concepts. The purpose of this article, then, is to provide an abbreviated version of Army Research Institute's (ARI) research on intangible psychological concepts that have an impact on Soldier readiness.

Across three phases of research, ARI first identified a number of concepts from the scientific literature. Soldiers were then asked to identify and prioritize intangible psychological concepts and their contribution to readiness. Effective training methods were also identified for a select few high priority concepts. Lastly, measures were developed and field-tested with actual Soldiers performing demanding mission-related tasks.

This first of three articles provides NCOs with a primer on important psychological intangible concepts found in the scientific literature. It is a summarized excerpt of a longer ARI technical report (Aude, Bryson, Keller-Glaze, Nicely, & Vowels, 2014a).

Hardiness

Hardiness was originally defined as "a personality attribute that reflects the courage and motivation to cope effectively with the stressors of daily life" (Vogt, Rizvi, Shipherd, & Resick, 2008, p. 61). However, modern research in this area suggests hardiness is more "accustomed to dealing with fatigue or hardships" ("Hardy," n.d., para. 3). As such, much of the research to date focuses on hardiness as an innate or stable concept and its relationship to various outcomes such as stressors, strains, social support, coping, and performance (Bartone, 1999; Bartone, Roland, Picano, & Williams, 2008; Dolan, & Adler, 2006; Eschleman & Bowling, 2010; Maddi, Matthews, Kelly, Resurreccion, & Villarreal, 2010).

New research suggests that hardiness can be developed by, and for, certain situations (Mosley & Laborde, 2016; Bartone, 2006; Bartone, Barry, & Armstrong, 2009; Maddi, 2007). In line with this new way of thinking, Maddi et al., (2010) defines hardiness as "a specific set of attitudes and skills that provide the courage, motivation, and strategies leading to resilience and growth in stressful circumstances" (p. 566).

Two studies lend support that hardiness can be developed or fostered (Maddi, Harvey, Khoshaba, Fazel, & Resurreccion, 2009; Zach, Raviv, & Inbar, 2007). Zach et al. (2007) looked at the effect of a gradual training program on 71 Israeli military officers in terms of physical performance during stressful situations. As part of this research, participants were measured on hardiness at the beginning (under normal conditions) and end of training (under stressful conditions). Results showed an improvement in hardiness after participants had taken the training.

In 2009, Maddi et al. looked at the effect of a hardiness training course on the level of hardiness in college students. Results showed an increase in hardiness after taking the class (Maddi et al., 2009). These two studies suggest that hardiness might be improved with proper training. Yet the unique and relatively small sample sizes used in each study (Israeli military officers and college students) points to a need for additional research to confirm and generalize these preliminary findings.

U.S. Army Spc. Aaron Tolson, a Paratrooper assigned to 1st Battalion, 508th Parachute Infantry Regiment, 3rd Brigade Combat Team, 82nd Airborne Division navigates a low-crawl obstacle during the 82nd Airborne Division's Best Medic Competition held at Fort Bragg, N.C., July 25-26, 2018. (U.S. Army photo by Spc. John Lytle)

Grit

Grit is a concept that has only recently gained widespread attention and is defined by *Merriam-Webster* as an "unyielding courage in the face of hardship or danger" ("Grit," n.d. para. 1). Grit entails working strenuously in the face of challenges, and maintaining effort and interest over years despite failure, adversity, and plateaus in progress. The gritty individual approaches achievement as a marathon, with his or her advantage being stamina. Rather than stubbornness, Dr. Angela Duckworth states that grit is about having a long term goal that sustains a person's interest over time (2007). "Disappointment or boredom signals to others that it is time to change trajectory and cut losses, the gritty individual stays the course" (Duckworth, Peterson, Matthews, & Kelly, 2007, p. 1087).

In 2007, Dr. Duckworth et al., (2007) formalized the concept of grit and developed a new measure called the grit scale. As part of their validation process, they tested the measure in several different areas. In these studies, they found the following:

1. Grit predicts an adults' level of education.
2. A person's level of grit appears to increase with age.
3. Grit predicts freshman cadet retention during the first year of summer training at the U.S. Military Academy.

The literature typically approaches grit-like attributes as a trait-based concept. However, Angela Duckworth, one of the leading researchers on grit, suggests that qualities of grit may in fact be teachable (Packard, 2007).

Research on grit shows promise for its relationship to educational achievement and persistence to complete demanding training regimes. In 2009, Duckworth and Quinn created and validated a shorter version of the original grit scale (Duckworth & Quinn, 2009). Results from the shortened scale were comparable to the original scale. ARI used the Duckworth et al. (2007) grit scale as part of a research effort that explored the extent to which perseverance contributed to a Soldier completing the Special Forces Assessment and Selection (SFAS) process and being selected for Special Forces (SF) training (Beal, 2010).

Beal (2010) found a positive, albeit weak, relationship between perseverance and SFAS completion. As such, it was recommended that the grit scale not be used on its own, but in conjunction with other measures to inform and support recruiting and selection decisions (Beal, 2010).

Self-confidence

Merriam-Webster defines self-confidence as "confidence in oneself and in one's powers and abilities" ("Self-confidence," n.d., para. 1). *FM 6-22: Leader Development*, discusses some of the important behavioral outcomes associated with confidence. For instance, "Generally, getting to know subordinates communicates a genuine interest in them as individuals. This builds confidence and generates trust" (Department of the Army, 2015b, p. 3-6). Confident leaders are needed at all echelons and for all situations. Further, "How Army leaders approach and persevere through difficult times sets a leadership example for others while demonstrating commitment to the organization" (Department of the Army, 2015b, p. 7-19).

FM 6-22 also emphasizes the importance of confidence in adverse situations along with indicators associated with such confidence, or a lack of, and an approach to foster its development (Department of the Army, 2015b, p. 7-20).

Kipnis and Lane (1962) examined the relationship between a lack of self-confidence and passive leadership techniques using a sample of 77 Navy petty officers. Results indicated that participants who lacked self-confidence were significantly less willing to hold face-to-face discussions with subordinates and significantly more likely to refer the subordinate to a superior. These same participants tended to rely upon the use of administrative rules to solve supervisory problems (Kipnis & Lane, 1962).

U.S. Army Spc. Roger Spain, with Delta Company, 741st Brigade Engineer Battalion, high crawls through the tide during the 2018 Oregon National Guard Best Warrior Competition at Camp Rilea in Warrenton, Ore., Aug. 18, 2018. Spain competed against other junior enlisted service members from Oregon National Guard units to earn the title of Soldier of the Year. (U.S. Army photo by 1st Lt. Jessica Clarke, Oregon Military Department Public Affairs)

These findings provide evidence that the psychological concept of self-confidence, in this case a lack of self-confidence, is related to tangible leadership behavior. Further, the findings would seem to support the assertions made in *FM 6-22* concerning the link between self-confidence and leader presence. Specifically, leaders lacking in self-confidence are more likely to employ passive leadership techniques, influencing others' interpretation of their leader presence (Department of the Army, 2006).

The importance of developing leaders with confidence is important at all levels, "Leaders develop the confidence, leadership, and the competence needed for more complex and higher-level assignments through education, training, and experience gained throughout a career" (Department of the Army, 2015b, p. 1-7). Training and practice under conditions that replicate combat (i.e. realistic training) are no doubt helpful to building self-confidence. And both self-confidence and confidence (the research does not readily distinguish between the two) have been shown to predict training outcomes (Warr, Allan, & Birdi, 1999).

Initiative

The Army defines initiative as "the willingness to act in the absence of orders, when existing orders no longer fit the situation, or when unforeseen opportunities or threats arise" (Department of the Army, 2017, p. 4-5). *FM 3-0: Operations* (2017) identifies individual initiative as a crucial component in seizing, retaining, and exploiting opportunities during Army operations. It also suggests that high quality Army Soldiers can best reach their potential by being given opportunities to exercise initiative. The Army's *FM 7-0: Train to Win in a Complex World* (2016) directs leaders to train their subordinates without stifling their initiative, and to use their own initiative when developing training. *FM 6-22* supports this notion by fostering a culture that allows subordinates to, "…take reasonable risks, grow, and develop their own initiative" (Department of the Army, 2015b, p. 3-2).

Both Army doctrine and current research discuss the importance of an environment that is conducive to encouraging initiative. The Army's current training doctrine , such as *ADP 6-0: Mission Command*, encourages leaders to develop initiative through a climate of trust and mutual understanding and to foster initiative in their subordinates (Department of the Army, 2019). Doctrine recommends training that consists of challenging, complex, ambiguous, and uncomfortable situations where Soldiers are allowed to think through and react to unexpected and difficult situations, and where initiative

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U.S. Army Paratroopers with the 173rd Airborne Brigade, participate in Exercise Rock Spring 19 at Grafenwoher Training Area, Germany, March 6, 2019. Rock Spring is an annual exercise to validate platoon-level proficiency at conducting offensive operations under live-fire conditions. (U.S. Army photo by Sgt. Henry Villarama)

is rewarded and honest mistakes are allowed (Department of the Army, 2019).

Initiative research, while primarily focused on the business sector, generally supports the Army's emphasis on a supportive climate. Fay and Frese (2001) conducted a series of studies where they examined different relationships between personal initiative and other relevant concepts. One such area of exploration is the relationship between personal initiative and a responsive environment consisting of control at work, complexity at work, stressors, and support for personal initiative (direct supervisors, top management). Hierarchical regressions demonstrated positive trends for these relationships except for the direct supervisor, which did not affect personal initiative (Fay & Frese, 2001). The implication is that the work environment and senior management have an important role in fostering initiative in individuals.

A United States Army Command and General Staff College research report on initiative-oriented training also provided support for the Army's method of developing personal initiative (Larsen, 1998). Results show that using mission orders during situational training exercises (STXs), changing conditions between iterations, providing an aggressive opposing force with increased latitude, and Multiple Integrated Laser Engagement System (MILES) free-play exercises were positively correlated with a Soldier's disciplined initiative. Disciplined initiative was defined as initiative demonstrated in accordance with the commander's intent (Larsen, 1998). In theory then, repetition of these variables (e.g., mission orders during STXs) in training would increase Soldier initiative because such orders direct Soldiers towards the tasks needed to be accomplished, but not how to accomplish them.

Will

Will was previously defined in doctrine as the "inner drive that compels [Soldiers] to keep going, even when exhausted, hungry, afraid, cold, and wet" (Department of the Army, 2006, p. 5-3). Will is an integral, though indirect, component of the Soldier skill set. While no longer literally named as a key attribute in the Army's leadership requirements model, will continues to be cited and referred to as important (Department of the Army, 2015b).

Doctrine endorses the idea that commitment to beliefs such as warrior ethos, Army values, justice, liberty, freedom and motivation are helpful in developing a Soldier's will. It also suggests that leaders give subordinates complex tasks to gradually develop the will necessary to take on more difficult tasks (Department of the Army, 2019).

The concept of self-regulation possesses a convergence with the definition of will. Self-regulation is defined as the "capacity to enact control over one's behavior" (Oaten & Cheng, 2006b, p. 717). One study took

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a group of 69 college students and had them each do one of three different self-control exercises over a two-week period. The simple exercises included monitoring and improving posture, regulating mood, and monitoring and recording eating.

Results showed an increase in participant self-regulatory capacity after doing the self-control exercises (Muraven, Baumeister, & Tice, 1999).

Other studies looked at the effects of interventions such as study and exercise programs on self-regulatory capacity. Results showed an increase in participants' self-regulatory capacity on a self-regulation exercise, and in other areas of their lives such as improved dietary habits, decreased stress levels, decreased chemical consumption, and increased emotional control (Oaten & Cheng, 2006a; Oaten & Cheng, 2006b). However, some of the research indicates that the amount of self-regulation a person has is limited and can be depleted. This characteristic of self-regulation is, perhaps, similar to or linked to a person's capacity for will. Research recommendations include providing ways of strengthening self-regulation through practice as well as restoring depleted self-regulation through sleep (Baumeister, 2003) or even laughter (Tice, Baumeister, Shmueli, & Muraven, 2007). If self-regulation improves the expression of will, then Soldiers and leaders need to be trained on being cognizant of when it is depleted and how to restore it.

Summary

The word *intangible* aptly captures the nature of the psychological concepts in the literature. The boundaries of the concepts are, at times, difficult to uniquely define, with the content of one sometimes overlapping another. Nevertheless, valid measures do exist for a number of the concepts, and research that sought to train or develop individual skill or ability associated with the concept sometimes resulted in demonstrated improvements in performance.

The literature review from the present research, however, also identified key challenges to the integration and implementation of training on intangible concepts. For one, the scientific evidence for some concepts is extensive, while for others it is considerably less. Additionally, most concept measures are not designed for use in an Army field environment (e.g., via brief observational checklists, etc). Rather, the measures are lengthy tests or surveys that would require some adaptation before they could be used by unit leaders and training support personnel.

Also much of the cited training for intangible or psychological concepts is in the form of instructor-led training that is designed for a classroom environment. Yet much of Army training is conducted in a field environment where units practice missions under as close to live or real conditions as can be replicated. That is not to say that classroom sessions do not have their place in unit mission preparatory training, only that a considerable investment is needed in skilled facilitators and application-oriented learning to ensure classroom instruction transfers to the field environment. ■

Royal Thai Armed Forces Master Sgt. 1st Class Saengchai Seeuthai, left, passes various insects as food to U.S. Army Pfc. Kyle Ridge, a combat medic with Bravo Company, 5th Battalion, 20th Infantry Regiment, during exercise Cobra Gold 19 at Phitsanulok, Kingdom of Thailand, Feb. 13, 2019. Cobra Gold is one of the largest theater security cooperation exercises in the Indo-Pacific and is an integral part of the U.S. commitment to strengthen engagement in the region. (U.S. Marine Corps photo by Cpl. Robert G. Gavaldon)

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A U.S. Army Special Forces Soldier with 1st Special Forces Group (Airborne) begins to pack his parachute after a night high altitude high opening jump, Jan. 25, 2019, during a three-week training exercise in Yuma, Ariz. (U.S. Army photo by Sgt. Ian Ives)

Part II: Concept Criticality and Training

Part two in this three-part series is designed to provide NCOs with the results of research conducted on the intangible psychological concepts that contribute to Soldier readiness. It draws upon the intangibles identified in the scientific literature (part one) to identify their criticality to readiness along with effective training methods. To further refine the list of intangibles identified in part one, unit members of a Brigade Combat Team (BCT) were asked for their professional opinion through surveys, interviews, and focus groups. Note that a more extensive technical report of this study was previously published and is available online (Aude, Keller-Glaze, Nicely, Shuffler, & Vowels, 2014b). The following research questions were examined during this phase of the research.

Research Questions

1. *What intangibles do unit leaders and Soldiers deem critical to Soldier mission readiness?*
2. *What are the intangibles that are already being trained and the strengths of that training?*
3. *Is training on intangibles achieved by the training of tangibles (tactical and technical training)? If so, what tangible training best develops intangible constructs?*
4. *What are the best examples or experiences that mentally/psychologically prepare Soldiers for mission readiness?*
5. *What are the training gaps and immediacy of the need for intangible constructs?*

Method

Sample

Data collection occurred at Fort Hood, Texas with Soldiers who were preparing for deployment. Data collection sessions consisted of five focus groups and 16 interviews, resulting in a total sample size of 56 Soldiers. The sample was selected to provide representation from various rank levels with backgrounds in training (i.e., design, planning, execution, and experience with training).

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Table 1 displays the breakdown of Soldiers by their rank cohort. Interviews were used to obtain responses from brigade and battalion S3s (operations) and other training personnel who were familiar with the design, planning, and execution of training. A focus group method was used to collect data from those who make sure training plans are executed, such as company commanders and first sergeants. Focus groups were also used to obtain the perspectives of those who conduct and/or receive training at the small team level, such as junior NCOs and junior enlisted Soldiers.

Table 1

Sample Size of Interviews and Focus Groups by Rank Cohort

Rank Cohort	Sample Size
Field Grade Officers	11
Company Grade Officers	8
Senior NCOs	15
Junior NCOs	5
Enlisted	18

Procedures

The interview and focus group sessions followed similar procedures. Interviews were allotted 60 minutes for completion and focus groups were allotted 90 minutes. All Soldiers were first given a Privacy Act Statement and Informed Consent Statement before the session. Across all sessions no one opted to not participate in the data collection. Next, Soldiers filled out a questionnaire. The questionnaire consisted of a list of behavioral statements. Each behavioral statement represented some part of the intangible constructs identified by the literature review. Due to the conceptual overlap across intangible constructs, some of the behavioral statements represented more than one intangible construct. Soldiers rated each behavioral statement from: Criticality to readiness, effectiveness of current training, need for improvement in existing training, and frequency of training needed. Scaled response options for each rated criterion are listed in Table 2.

Table 2

Criteria and Response Options

Criteria	Response Options	
Criticality to readiness	1 = Not at all critical	5 = Very critical
Effectiveness of current training	1 = Very ineffective	5 = Very effective
Need for new / improvement in existing training	1 = Very low need	5 = Very high need
Frequency of training needed	1 = Very infrequent	5 = Very frequent

After Soldiers completed the questionnaire, they were asked a series of open-ended questions. The initial part of the question protocol asked Soldiers to elaborate on their ratings of intangibles on the aforementioned questionnaire. The latter part of the protocol inquired about the broader set of research questions.

Data Analysis

Quantitative analysis

Means and standard deviations were calculated for all of the behavioral statements on each of the criterion and a highest to lowest mean score listing was created. A primary focus of this phase of the research was to focus on a narrower set of important intangibles. The top mean score ratings for each criterion are highlighted in the results section to follow. The lowest rated mean scores across each criterion were also explored to gain an understanding of what intangibles are of lesser importance and why.

Qualitative analysis

The desired outcome of the qualitative data analysis was to identify the highest frequency themes. Additionally, the intent of the analysis was to examine the content of those themes in relation to the quantitative survey of intangible behavioral statements. Qualitative analysis of interviews and focus groups consisted of coding each session for themes. Themes were categorized and counted under research questions and only the most frequent themes were discussed. The analysis of the qualitative interview and focus group data was done using a three-step process.

Step I

Facilitators and recorders from the data collection read through each transcript and identified a tentative list of themes. They then came to a consensus on themes for each research question, thereby creating a master list. All coders then used the theme list to code the comments from the same transcript. The majority of comments were coded the same way among all coders. Any discrepancies among coders were discussed and issues were resolved prior to coding all remaining transcripts.

Step II

Twenty one total transcripts (16 interview transcripts and five focus group transcripts) were split among three coders. Each coder coded 14

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transcripts. This allowed for each transcript to be coded twice which would allow for coding accuracy checks in Step III. Coders coded themes at the session level. When a theme was mentioned once in a session, it was reported once in the results. Similarly, when a theme was mentioned five times in a session it was reported only once in the results. This allowed for the calculation of theme counts among sessions while controlling for method issues that could result from analyzing interview and focus group data together.

This method of calculating theme counts does not give greater weight to focus groups where multiple Soldiers are likely to mention the same theme. This also mitigates the repetitive mention of a theme in the same session. Consequently, the session-level method of calculating themes reduces potential sources of falsely reporting the frequency of a given theme.

To facilitate citation of in-depth descriptions of Soldiers' comments, each coder highlighted the accompanying narrative of a given coded comment. This procedure allowed analysts to include descriptive statements representative of a particular theme. Thus, theme descriptions were able to be reported in a way that reflects the richness and depth of a given theme.

Step III

Each transcript was coded twice by two different coders. Following coding, the two coders met and discussed the themes they identified and the respective text from the transcripts that they highlighted. A total of three two-hour accuracy sessions took place among coders where they reviewed the transcript that they had both coded.

During each session, one coder created a new document for each transcript that included all of the agreed upon themes from both coders. In the accuracy sessions, coders found, discussed, and resolved differences, thus providing greater accuracy in the coding process.

Results and Findings

Most critical intangibles

Intangible criticality mean scores ranged from 3.16 to 4.70. Ratings of three on the response scale equates to an intangible being "somewhat critical." To some extent, all of the intangibles that were investigated reflect some level of importance to Soldier mission readiness. That most, if not all, intangibles are important also found support among interview and focus group Soldiers. Twenty-four percent of qualitative sessions mentioned that all of the intangibles examined by the questionnaire were important to Soldier mission readiness. However, further analysis of the highest-rated intangibles from the questionnaire, together with themes from interviews and focus groups, identified several intangibles that appear to be more critical to Soldier mission readiness than others.

Notably, several questionnaire items represented more than one intangible. For example, the item, "Doing what is right (legally and morally) even when no one is looking" represented both integrity and authenticity. The representation of multiple intangibles within an item reflects the overlap that exists between behavioral demonstrations of the intangibles. Thus, overlapping intangibles are combined in the following discussion.

Intangibles with the highest mean score ratings (listed highest to lowest) that also found support among interview and focus group participants were:

- Integrity/authenticity
- Initiative
- Resiliency/hardiness
- Grit/will
- Patriotism/loyalty/pride

In several instances, Soldiers discussed how and why these intangibles were most critical. Starting with the most critical intangible, quantitative and qualitative findings are discussed in greater detail below.

Integrity/authenticity

Doing what is right (legally and morally) even when no one is looking was rated the most critical among all of the behaviors (M= 4.70, SD=.83). Additionally, seven out of the 21 qualitative sessions (33%) mentioned the criticality of these intangibles with regards to Soldier mission readiness. Soldier comments concerning integrity/authenticity stressed the importance of training Soldiers to do what is right because they will be put in positions where they need to act appropriately with little or no guidance from supervisors. For example, one Soldier stated, "We preach this to Soldiers all the time because they might find themselves unsupervised on the battlefield as they interact with the local population" (Soldier interview, 2014). Another Soldier mentioned that these intangibles were important to a leader's trust in their Soldiers, "We have to trust these guys to be able to operate without direct supervision. They need to make moral/ethical judgment calls. That's my take, being able to trust the team leader or the Soldier as an individual" (Soldier interview, 2014).

Initiative

Acting in the absence of orders, when existing orders no longer fit the situation, or when unforeseen opportunities or threats arise was among the most critical behaviors to Soldier mission readiness (M= 4.63, SD=.70). And ten out of the 21 sessions (48%) mentioned the criticality of this intangible with regards to Soldier mission read-

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iness. When discussing this intangible, Soldier comments focused on the importance of being a self-starter. One Soldier said that when existing orders no longer fit the situation, or when unforeseen opportunities or threats arise, acting in the absence of orders is important because "Soldiers should know what to do even when someone is not there to tell them what to do" (Soldier interview, 2014). Similarly, another Soldier commented it is important because "there isn't always time for someone to explain what needs to be done" (Soldier interview, 2014). These comments suggest that initiative is a critical factor in dealing with challenges, uncertainty, and the ambiguity that occurs during missions.

Resiliency/hardiness

Recovering quickly from setbacks, shock, injuries, adversity, and stress while maintaining a mission and organizational focus was among the most critical behaviors to Soldier mission readiness (M= 4.61, SD=.65) with nine out of the 21 sessions (43%) mentioning the criticality of this intangible.

Grit/will

The ability to keep going, even when exhausted, hungry, afraid, cold, and wet, was among the most critical behaviors to Soldier mission readiness (M= 4.59, SD=.63). This intangible was not frequently mentioned in the sessions with regards to criticality to readiness, yet it was mentioned in other areas such as training effectiveness and the need for new training.

A Paratrooper puts the finishing touches to her face camouflage in preparation for the blank-fire exercise as part of Lipizzaner V at Pocek Range in Postonja, Slovenia, March 12, 2019. Lipizzaner is a combined squad-level training exercise in preparation for platoon evaluation, and to validate battalion-level deployment procedures. The 173rd Airborne Brigade is the U.S. Army Contingency Response Force in Europe, capable of projecting ready forces anywhere in the U.S., European, Africa or Central Commands' areas of responsibility. (U.S. Army photo by Paolo Bovo)

Patriotism/loyalty/pride

Displaying commitment and allegiance to the Army in support of the United States was among the most critical behaviors to Soldier mission readiness (M= 4.57, SD=.87). Eight out of the 21 sessions (38%) mentioned the criticality of these intangibles with regards to Soldier mission readiness. In their comments, most Soldiers identified these intangibles as a natural part of Army culture that is ingrained in all Soldiers.

Accountability

Accepting responsibility and consequences for one's actions was a frequent theme concerning critical intangibles to Soldier mission readiness. It was mentioned in seven out of 21 sessions (33%). Results showed it was among the most critical behaviors to Soldier mission readiness (M= 4.54, SD=.93). Soldiers commented that accountability was important at all levels and that a concern is Soldiers taking responsibility for their actions.

Mental agility

Demonstrating flexibility of mind to anticipate or adapt to uncertain or changing situations was a frequent theme concerning critical intangibles to Soldier mission readiness. It was mentioned in ten out of 21 sessions (48%). Relative to other behaviors on the questionnaire, results showed that this behavior was between the most critical and least critical behaviors (M= 4.32, SD=.88). Several Soldiers commented on the need for improvement concerning this intangible. Some Soldiers' comments addressing the criticality of mental agility were: "Soldiers need to be able to react to a change in a mission", "you might not be able to train for every event that may occur," and "it ties in with resiliency as well…if your team leader goes down, somebody has to step up and take charge" (Soldier interviews, 2014.) In summary, Soldiers suggested that mental agility is a prerequisite for taking initiative.

Most critical intangibles to effective officer and NCO leadership

Soldiers were asked to identify intangibles that were particularly important to officer and NCO leadership. The intangibles that were most critical were found in two overlapping areas. The first critical area included pride and discipline. The second critical area included empathy, duty, warrior ethos, and warrior spirit. Combined, they were mentioned in 29% of the sessions.

The second critical area concerned behaviors such as displaying care and concern for Soldiers (19% of sessions), sharing hardships with fellow Soldiers (10% of sessions), and accepting responsibly for others (14% of sessions). Combined, these related behaviors were mentioned in 43% of sessions.

Soldiers commented that intangibles related to taking care of Soldiers were important to both NCOs and officers, but especially for NCOs. Soldiers also noted that setting and maintaining high standards was critically important for NCOs. Concerning critical intangibles for officers, Soldiers commented on the importance of prioritizing tasks and accepting responsibility for others.

Effective training methods

Soldiers were asked to identify effective methods for training intangibles. Soldiers frequently mentioned (24% of sessions) that these behaviors were not overtly trained. For example, one Soldier said, "We don't have classes for this, but I think that throughout our training cycle we touch a bit on everything" (Soldier interview, 2014). This comment generally provides a summary of how Soldiers felt intangibles were being trained. Therefore, the discussion of effective training methods focused primarily on training designed for other purposes (e.g., skills-based training and operations).

The methods that Soldiers identified can be categorized into two broad categories: daily training (e.g., physical fitness training) and event-based training (e.g., field exercises). The methods that Soldiers identified are discussed below with comments from the sessions to describe why the method was effective.

Daily training

Soldiers' comments concerning effective daily training were categorized into two themes. The first theme, "on the job training/occurs naturally in the course of the day" was frequent (57% of sessions). Soldier comments suggested that on the job training was effective for training the intangibles. Further, Soldiers commented that they preferred this method of utilizing hands-on training to classroom training. Soldiers said that though the intangibles are not overtly trained, most of the intangibles are learned on a daily basis in garrison by leaders who set a good example. Some of the behaviors that were mentioned (related intangibles in parentheses), were prioritizing tasks (warrior ethos/warrior spirit), sharing hardships (empathy), displaying care and concern for Soldiers (empathy/duty), and setting and maintaining standards (pride/discipline).

The second theme identified physical fitness training (PT) as an effective daily training method that is used for training some of the intangibles. This theme was frequently mentioned (29% of sessions). Soldiers identified that PT was an effective method for training on the following behaviors: Physically face fear, danger and adversity (personal courage), and sharing hardships (empathy).

Event-based training

There were four different types of event-based training identified as effective means for training the intangibles that received frequent comments in the interview and focus group sessions. The four different types were: Skills-based training, resiliency and medical training, Soldier development programs, and leader feedback.

Skills-based training

Table 3 displays the different types of skills-based training that were mentioned for effectively training intangibles and the percentage of times the methods were mentioned in focus group and interview sessions.

Table 3

Effective Skills Based Training Intangibles

Effective Methods	% of Sessions
Field exercises	57%
Situational exercises	38%
Live fires	29%
Combat Training Center	24%
Gunnery	14%
Lane Training	14%
Unit specific field exercise	14%

Soldiers affirmed that the effectiveness of these training types was due to the hands-on, realistic nature of simulating and practicing skills/missions. Further, incorporating uncertainty and making training challenging/stressful were identified as adding to the realism in training and thereby enhancing training effectiveness.

Skills-based training was cited as an effective means for training several intangibles, such as resiliency, hardiness, warrior ethos, warrior spirit, grit, will, initiative, mental agility, adaptability, and situational awareness.

Resiliency and medical training

Table 4 displays the resiliency and medical training that were mentioned for effectively training intangibles

Table 4

Effective Resiliency and Medical Training for Training Intangibles

Effective Methods	% of Sessions
Resiliency Training	19%
Combat life-saver training / MSTC training / trauma lane	29%

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and the percentage of times the training methods were mentioned in focus group and interview sessions. Soldiers specifically mentioned the effectiveness of resiliency and medical training for training personal courage and self-confidence.

Soldiers identified resiliency and combat life-saver training as effective training methods for preparing Soldiers for the realities of combat. For example, one Soldier said, recalling combat life saver training, "… you're dealing with the human side though, the guys with arms off or 'dead' and dealing with that. We expose Soldiers to videos and it sets their mind working. Exposing them to medic training would be good" (Soldier interview, 2014).

As with the skills-based training, the comments concerning medical training effectiveness stressed the importance of providing realism in training. For example, one Soldier commented on medical training that he thought was effective, "It's a realistic scenario. It's built up to look like an Iraqi neighborhood. The wounds are realistic-looking on the mannequins, so it's a good trainer. Anything that we can do to add to that realism… more is better" (Soldier interview, 2014).

Soldier development programs

Table 5 displays the different types of Soldier development programs that were mentioned for effectively training intangibles and the percentage of times the training methods were mentioned in focus group and interview sessions. Soldiers mentioned three Soldier development programs, specifically: Basic Training Problem Solving exercises, Ranger School, and Mungadai Training (a type of survival training that is used to push Soldiers to their limits). Soldiers said these programs were effective in training self-confidence, grit, will, resiliency, and hardiness. The main features of the development programs that were apparent in comments were their ability to push Soldiers to their limits and that the programs were challenging. Concerning the difficulty of training, one Soldier said, "You learn what you are capable of, how far you can push yourself, and just keep going" (Soldier interview, 2014).

Another effective characteristic of these programs was team-based training. Soldiers commented that challenging team-based training contributed to cohesion and building trust within their team.

Leader feedback

Table 6 displays the different types of leader feedback methods that were mentioned for effectively training intangibles and the percentage of times the methods were mentioned in focus group and interview sessions. Soldiers mentioned that leader feedback methods were an effective way of training most of the intangibles. Specifically, Soldiers identified the effectiveness of counseling for training resiliency and hardiness. Soldiers also mentioned that mentorship was an effective means for instilling discipline.

Table 5

Effective Resiliency and Medical Training for Training Intangibles

Effective Methods	% of Sessions
Ranger School	14%
Mungadai training	10%
Basic training problem solving exercises	10%

Table 6

Effective Leader Feedback Methods for Training Intangibles

Effective Methods	% of Sessions
After action reviews	24%
Counseling	19%
Mentorship	10%

Table 7

Ineffective Methods for Training the Intangibles

Ineffective Methods	% of Sessions
Classroom training	38%
PowerPoint instruction	19%
Qualifying / Check the box instruction	14%

Ineffective training methods

Soldiers also identified several training methods that were ineffective for training the intangibles. *Table 7* displays the different types of ineffective training methods and the percentage of times the methods were mentioned in focus group and interview sessions. Far more Soldiers commented that classroom training was ineffective rather than effective. Further, Soldiers mentioned they did not think using PowerPoint slides, a common classroom method of instruction, was an effective means for training intangibles.

Soldiers provided comments criticizing the quality of some skills-based training. Specifically some Soldiers mentioned skills-based training was ineffective when the training appeared to be too simplistic or "check-the-box" training. One Soldier provided a detailed explanation on the ineffectiveness of "check-the-box" training: "There's a gap in the sense of rifle training: they train to qualify, not train for combat. It's checking the block. There's not a lot of units going out there to do training on that. All of the training I've done is to check the box rather than training to build teamwork" (Soldier interview, 2014).

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Theme Findings Pertinent to Training Development

In addition to what has been presented, several broad themes were identified in the qualitative data.

These are themes that have important implications for the development of intangibles and should be considered when selecting the most effective learning methods and measurement tools for training these constructs. A discussion of each theme is provided below.

Effective features for training intangibles

There were several comments and recommendations about features that should be incorporated into training in order to effectively train the intangibles. *Table 8* displays the most frequently recommended training features and the percentage of sessions that the features were mentioned across all sessions.

Table 8

Effective Features for Training Intangibles

Ineffective Methods	% of Sessions
Difficult / rigorous / challenging training	38%
Experiential training	38%
Realistic training	33%
Train using repetition	29%
Incorporate uncertainty into training	29%
Training should train Soldiers to deal with stress	19%
Team-based training	14%

Soldiers frequently stated that training should be made to be difficult or challenging. The most effective training experiences that Soldiers discussed referenced training that pushed them beyond their limits and made them grow to reach new limits. Soldiers also frequently mentioned their desire to have hands-on training that utilized experiential learning. Similarly, Soldiers stressed the importance of making training realistic. These recommendations point to the effectiveness of hands-on, realistic, and difficult training. These features tended to be discussed when describing the effectiveness of training methods (field exercises, medical training, etc.). Soldiers also noted that repetition was required for gaining and maintaining proficiency on the intangibles.

Soldiers suggested that more team-based training should be done to build trust and cohesion. Further, Soldiers wanted training to include dealing with uncertainty and stress. The current operational environment contains high levels of uncertainty and can cause high levels of stress. Thus, in order to effectively train Soldiers to be mission ready, training would need to incorporate these important features.

Challenges in Developing Training for Intangibles

There were several themes regarding challenges in developing training for intangibles:

Not enough time for training

The most prevalent theme identified in the data regarding challenges in developing training for intangibles was "not enough time for training." This particular theme was mentioned in 13 of the 21 interview / focus group sessions (62%). A sample of comments included, "I don't think that we have time to train on all of these," "What we don't have is time. To make Soldiers better you have to have more time between deployments," and "Like every unit in the Army, there are more things to do than we have time to do" (Soldier interviews, 2014).

General difficulties in training a behavior

The next most common theme was *general difficulties in training a behavior*. This particular theme was mentioned in nine of the 21 interview/focus group sessions (43%) and was often associated with the intangible construct of courage. For example, one Soldier said:

> "*Even with realistic scenarios, Soldiers know it isn't real. When they get hit, they know they can turn off their MILES gear. There really isn't a good way to train someone that just saw their buddy get shot in the face to then go and storm a building. I don't know of a way to realistically simulate danger and adversity so that Soldiers can learn to face it. Everyone knows that it isn't real.*" (Soldier interview, 2014)

Behaviors that are inherent to each person

The next most common theme identified in the data was *behaviors are inherent to each person / cannot be trained / either a Soldier is proficient or they are not*. This particular theme was mentioned in seven of the 21 interview/focus group sessions (33%). For example, one Soldier said, "I can't say that (these cannot be trained) because a lot of them are inherent to being in the Army" (Soldier interview, 2014). Another suggested, "These aren't things that are taught out of a book. So it's what… a Soldier is taking out of a situation. It's all on the person" (Soldier interview, 2014).

Final Prioritization

Soldiers were asked to rate each intangible on its criticality to Soldier mission readiness and whether current training associated with its development was effective. The difference between the two scores was then used to

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identify gaps in current training effectiveness and needs for training. Intangibles with the largest gap between rated criticality and training effectiveness were resiliency, hardiness, initiative, integrity, authenticity, will, grit, and discipline. Further, focus group and interview Soldiers were asked to identify training gaps as well.

The paragraphs that follow discuss these intangibles, along with literature review findings that further assist in prioritizing the intangibles. This prioritization is important toward the final research objective of creating field measures for a smaller set of critical and needed intangibles.

Hardiness

Results from the data collection indicated that hardiness was one of the most important constructs for Soldier mission readiness. As with resiliency, it was rated highest in terms of training ineffectiveness and need for new or improved training. Army doctrine has referred to hardiness and resiliency together as outcomes to training programs (Department of Army, 2017). However, some research literature suggests that perhaps hardiness is a pathway to resiliency. The majority of research in this area views hardiness as a personality trait; although, some evidence suggests hardiness can be trained. It was recommended that hardiness be selected for measurement development in the final phase of this research.

Initiative

The literature review and data collection were fairly consistent in terms of the importance of initiative to Soldier mission readiness. Results from the data collection indicated that initiative was one of the most critical constructs and Army doctrine views it as an essential component of mission success. In addition, both Army doctrine and research in this area suggest manipulating the environment that a person trains in can be an effective way of developing initiative. For example, Army doctrine suggests using event-based and situational exercises that incorporate challenging, complex, ambiguous, and uncomfortable situations as a means of doing this. Thus, current training on this construct was seen as ineffective and in need of new or improved training. This disparity would suggest that current initiative training might not be meeting the expectation of those who are employing it. Thus, it was recomended that initiative be selected for measurement development.

Will

Will was one of the least effectively trained identified constructs, while concurrently, one of the highest rated in terms of needing new or improved training. That being said, some of the Soldiers did mention a few training methods they found to be helpful in fostering will. These included field training exercises and daily PT. They also mentioned that to be effective, training needed to be challenging and difficult. As for empirical support for such methods, the literature on will has remained fairly silent. However, self-regulation, a similar construct, has shown promise. It was recommended that will be selected for measurement development.

Grit

Results from the data collection indicated that grit was also one of the most important constructs for Soldier mission readiness. Yet, as with will, it was rated high in terms of training ineffectiveness and would require new or improved training in order to develop it. Grit is often viewed as a personality trait in the literature and limited evidence has shown it to be trainable. In addition, current Army doctrine does not mention grit; nor does it discuss successful training methods for its development. Further review of the literature should examine how grit is measured and address the trainability issue. Because of the criticality, ineffectiveness of training, and expressed need for new training, grit was selected for measurement development.

Recommendations

In sum, a number of intangibles and their associated behavioral content deserve the attention of units for training and measurement. Analysis of the literature review in the initial phase, along with quantitative and qualitative data analysis in this phase, led to the identification of a reduced number of critical intangibles for which there is also a high need for new or improved training. Therefore, at the conclusion of this phase, the psychological intangibles recommended for measurement development were initiative, will, grit, and hardiness. This recommendation was grounded in their: criticality to Soldier mission readiness, expressed Soldier need for new training, the feasibility of measurement and training, and the importance placed on these intangibles in the literature and doctrine.

Effectively enhancing the integration of these intangibles into a unit training and assessment strategy is believed to be the best way to ensure Soldier psychological mission readiness. In order to successfully integrate those intangibles adequate measures were needed, particularly for a live training environment. Thus, in the final phase of research, multiple measures of intangibles were developed for validation. ■

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Retired U.S. Army Sgt. Daniel Cowart is presented the Distinguished Service Cross during a retreat ceremony conducted in his honor at Fort Hood, Texas, March 20, 2019. Chris Widell, a friend of Cowart's who helped during his recovery, pinned the medal on Cowart's uniform. According to the citation for the award, in 2007 in Iraq, an insurgent his team encountered was wearing a suicide vest, "Without hesitation and with utter disregard for his safety, Sgt. Cowart maneuvered under fire and engaged the insurgent in hand-to-hand combat." (U.S. Army photo by Maj. Carson Petry)

Part III: Intangible Measures Development and Field Test

The goal of this phase of research was to develop valid measures of intangible psychological concepts and to test those measures in a live training environment. For the purposes of the research, the authors used the term intangible to describe psychological constructs that contribute to Soldier mission readiness. Soldier mission readiness describes Soldiers' preparedness for a wide range of missions (e.g., disaster relief, short-term contingency operations, long-term deployments, counterinsurgency operations, full spectrum operations, etc.). There were three phases of this research; the field test is the third. Below, we provide brief summaries of the first two phases and introduce Phase III.

Phase I

The purpose of Phase I of this research was the identification of psychological constructs critical for Soldier mission readiness. To support the research objectives, a comprehensive literature review including academic and military sources was conducted and a combined total of approximately 100 Soldiers and leaders were either interviewed or participated in focus groups. Several constructs were identified, each of which had multiple sub-constructs embedded within them. Data collection with Soldiers and leaders assisted in the development of a concise list of four key intangibles deemed most critical to mission readiness, namely: hardiness, grit, will, and initiative.

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Phase II

Phase II of the research consisted primarily of data collection focused on the measurement development for hardiness, grit, will and initiative, as well as the identification of what types of training/learning environments are most conducive to observe Soldiers displaying these four intangible constructs. During data collection, interviews were conducted with a combined total of approximately 50 Soldiers and leaders. Results indicated that a number of training environments are potentially effective environments for the type of experiential and realistic conditions needed to train intangibles (e.g. Combat Training Centers). Interviewees suggested that any given Soldier's immediate superior would provide the most accurate assessment of intangible psychological constructs displayed by them. To provide the basis for such assessments, performance indicators for each of the intangible constructs were identified. The end result of this phase of the research provided the necessary data to move towards the development of actual measures that could be used in a live training environment.

Phase III: Current Research

Phase III of this research involved two primary tasks, each consisting of several subtasks. In this phase, emphasis was on developing and establishing the validity of selected intangible measures. Likewise, psychometric analyses of the measures were conducted to determine if construct validity and reliability statistics were acceptable and to refine the measures accordingly. In the final task, the measures were evaluated in a field training environment. Soldiers used the measures in live training and reported on their general acceptance. This approach allowed for an evaluation of the overall effectiveness and efficiency of the measures in a field training environment.

In sum, the present research builds on the previous phases of intangible construct content and measurement literature reviews, together with Soldier data collections, to establish the validity of Soldier measures of intangibles critical to mission readiness. Furthermore, the field test demonstrates Soldiers can effectively and efficiently utilize the instruments in a realistic training environment. Note that a more extensive technical report of this study was previously published and available online (Aude, Nicely, Lodato, & Vowels, 2015).

Establish the validity of perseverance and initiative measures

After multiple iterations of discussion by the research team and confirming what the empirical data was indicating, two measures were developed for two intangible constructs: *initiative* and *perseverance* (which consisted of a combination of hardiness, grit, and will). Given that the final intent of the measures were that they could be used by NCOs in a field environment, we chose a format that would be field-expedient in terms of scoring, easily understood by the end-user, and still capture primary elements of each intangible, thereby creating a tool for use by both Soldiers and researchers.

In order to check the validity, or provide statistical evidence that the measures did indeed measure what they are proposed to do, we asked approximately 150 Soldiers (largely sergeants and staff sergeants) to provide ratings while thinking about a specific Soldier performing a specific task. We also asked questions with regard to whether the measures of initiative and perseverance were easy to understand and if any items were unclear.

Through statistical analyses, the evidence provided by Soldiers indicated that each measure was capturing each intangible effectively and that the items for each measure were statistically reliable. Statistical reliability indicates that scores from a test or measure are accurate and would be consistently reproduced across different administrations of the measure. Given these findings, we were able to move to the final step, using the measures in a live training environment. This allowed us to get candid feedback from the end-users that the measures appear to measure what they are supposed to.

Field Test of Measures

The culminating event of this research was to develop measures that could be used by Soldiers in a training environment with little train-up and that provided a means of capturing critical intangible data not readily available in existing Army measures. In order to field test the measures, we partnered with the Medical Simulation Training Center (MSTC). Specifically, it was important to ensure that both measures were viewed as important, of an appropriate length, and included clearly written instructions and items. Experienced Soldier participants (acting as squad leaders) at MSTC were chosen for the field test because its training puts Soldiers under conditions in which they are expected to exhibit initiative and perseverance. The MSTC Military Operations in Urban Terrain (MOUT) site provides a mentally and physically challenging environment that Soldiers must maneuver through as a squad. Furthermore, the squad leaders, by way of their Army and supervisory experience, met the rating criteria previously identified to accurately rate intangible constructs.

Participants

A total of 10 experienced squad leaders participated in the field test. Of these 10 Soldiers, nine indicated that their rank was "SGT" and one indicated "Other." Nine of the participants indicated that their position was "Squad/Section/Team Leader" while one indicated "Other NCO Position." The average time of service for the 10 participants was 63.1 months (just over five years). And the average number of deployments was 1.7.

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Measures

The two 18-item measures developed for the field test were nearly identical to those created and tested during the construct validation (described above). The format and instructions slightly differed and the evaluation items that followed the measures were expanded and revised (six items plus an open-ended question for additional comments). These adjustments were made to account for the change in use of the measures from simply thinking about a Soldier and rating them (construction validation), to the actual observation and subsequent rating of that same Soldier (field test/face validation). For each of the six evaluation items, participants responded according to a 7-point Likert scale (1=Strongly Disagree, 7 = Strongly Agree). Full versions of both measures used during the field test are available in Appendix B & C of the ARI technical report located at: http://www.dtic.mil/dtic/tr/fulltext/u2/a616373.pdf

Procedure

The procedure for the field test involved two main steps. In the first step, squad leaders were oriented to the two measures, the benefits of this research were explained to them, and informed consent was obtained. Squad leaders were told to pay particular attention to Soldiers in their squad who exhibited signs of *initiative* and *perseverance* (or a lack thereof). They were then shown the two measures they would be expected to rate a Soldier on and asked to quickly scan and indicate their understanding of the items. The squad leaders were then reminded that they would rate one Soldier on each construct measure at the conclusion of the MSTC exercise.

In the second step, the squad leaders met back with the research team after the MSTC After Action Review. During this meeting, they were asked to recall one or more Soldiers who displayed initiative and perseverance during the MSTC exercises. Each participant was then provided with instructions for the two measures, and asked to rate one Soldier using the initiative measure and either the same or a different Soldier using the perseverance measure. Soldiers were also instructed to complete the brief evaluation (six items and one open-ended question) for each measure. After completing both measures and the evaluations, squad leaders were thanked for their participation and contribution to Army understanding of Soldier perseverance and initiative.

Results

The focus of field data analysis was on the initiative and perseverance measure evaluation items and open-ended question that participants completed after having rated Soldiers on these intangibles. These items were designed to confirm the display of the intangible during the training exercise and obtain user feedback on the effective use of the measures in a field environment. The means and standard deviations for these six items, for initiative and perseverance, are provided in *Table 9*.

The results presented in *Table 9* provide support for both the appropriateness of the training venue selected as well as the effective field use of the two measures. The MSTC training venue clearly provided the opportunity for Soldiers to display initiative and perseverance. Furthermore, while previous research had indicated that the content comprising these two constructs was important, it was good confirmation to hear that both of the named constructs, initiative and perseverance, were viewed by these 10 NCOs as important aspects of training (Mean = 6.60 out of a 7.0 scale). The squad leaders tended to disagree with the statement "there were too many questions in this measure" confirming that the 18-item length was about right. Ease of understanding of measure instructions and the items themselves was also a positive finding.

Additional comments on the measures included one participant suggesting that the measures ought to be used by leaders with their own platoons and squads. The MSTC participants come from a variety of Fort Hood units and squad leaders are assigned their role for the purposes of completing the MOUT lane. This participant went on to say that a

U.S. Army Air Assault students practice rappelling out of a Black Hawk helicopter on day nine of Air Assault School's Class 301-19, Feb. 14, 2019, at Camp Buehring, Kuwait. The hands-on training in U.S. Army Central's area of operations with a Black Hawk helicopter gave Soldiers the opportunity to develop additional skills, which included moving equipment and rappelling, that benefited their unit while forward deployed. (U.S. Army photo by Sgt. Christopher Lindborg)

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Table 9

Means and Standard Deviations for Six Evaluation Items for Initiative and Perseverance Measures (7-point Likert Scale Ranging from Strongly Agree (7) to Strongly Disagree (1).

	Initiative		Perseverance	
Item	Mean	SD	Mean	SD
During this training event the Soldier I rated displayed _____	5.40	1.96	6.40	1.58
The Soldier I rated was effective overall in this training event	5.80	1.14	6.00	0.82
This measure concerns an important aspect of training	6.60	0.70	6.60	0.70
There were too many questions in this measure	3.10	1.45	3.40	1.17
The instructions for this measure were easy to understand	6.30	1.57	6.50	0.97
The items in this measure were easy to understand	6.80	0.42	6.80	0.42

leader who knows their Soldiers very well could use the measures more effectively as a tool. This comment lends support for one of the primary users of the measures to be by the immediate supervisors of Soldiers.

Discussion

This study provided support for the construct validity and reliability of the initiative and perseverance measures. In conducting validation steps, statistical support was found for retaining 18-item measures for both initiative and perseverance. Results from a statistical approach indicate that each measure was measuring just one intangible, as intended. While initiative appears to be measuring an overall action orientation, perseverance is measuring a motivation to achieve in spite of obstacles and setbacks. This suggests that it was effective to assess each of the constructs with a separate 18-item measure and that no subscales were necessary. Additionally, the use of bipolar response scales was effective at avoiding common measurement problems such as response range restriction, skewness, and a lack of variability in responses. Bipolar scales also contributed to ease of use by raters.

This study also found support for the field utility of the instruments for measuring intangibles during realistic training. Findings from the field test indicated that squad leaders who completed the measures felt that they assessed an important aspect of training, that the measures did not include too many items, and that instructions and items themselves were clear. These findings support the general face validity of the two measures and that they represent constructs important to Soldier mission readiness.

Future Research

The current research provides valid and reliable measures of Soldier initiative and perseverance. Yet beyond providing Soldiers, or their leaders, with a scaled rating of each construct, there are no suggestions or recommendations as to how a Soldier who is rated low, for example, might improve. Earlier phases of this research identified the type of training within which the intangible constructs are best observed and experienced. Yet the mere experience of situations requiring the display of initiative and/or perseverance are not known to improve a Soldier's long-term display of either intangible.

Specific types of training or targeted tasks (e.g. confidence-building exercises) might prove helpful toward the development of initiative and perseverance. While it is beyond the scope of this research to identify means of intangible development, future research might focus on some of the following ideas.

A Soldier from U.S. Army Installation Management Command and Army North competes in the obstacle course event of the 2017 Best Warrior Competition at Camp Bullis, Texas, June 11, 2017. (U.S. Army photo by Tim Hipps, IMCOM Public Affairs)

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It may be the case that the mere administration and use of appropriate feedback methods with Soldiers would make them more aware of the behavioral indicators of initiative and perseverance. Consequently, feedback on their ratings may lead to greater exhibition and demonstration of behaviors associated with initiative and perseverance. So, too, a leader's use of reinforcement (e.g. praise, encouragement) associated with the behaviors hold promise for increasing the frequency of their display by Soldiers.

Further questions remain that could bolster home station training effectiveness and advance the science including: As performance fluctuates, does the display of intangibles track with that performance, and, if so, can we predict one from the other?

Perhaps with further research, we may be able to address questions regarding whether measuring intangibles in a live training environment is not only possible, but fosters recent calls to, for instance, encourage better understanding of self-awareness and self-discovery in Soldiers and leaders (Department of the Army, 2015a).

Then again, it may be that initiative and perseverance are more trait-like and not easily subject to development and change. In other words, initiative and perseverance may be human characteristics that are developed and fixed early in life. Consequently, it would be difficult for a Soldier, or those who supervise them, to change the level of initiative or perseverance an individual exhibits during a single unit assignment. Thus, research that determines the extent to which the intangibles are fixed, learned over time, or subject to immediate change and development, would be helpful toward shaping unit level training and expectations. Specifically, it would help Soldiers and their leaders to know to what degree they can and should expect these intangibles to change over time. Additionally, such research might also lead to the use of perseverance and initiative measures as key measures for job selection.

Lastly, it would be helpful to engage Army leaders in a discussion of the potential applications of this research. For example, an important next step might be to conduct a working group with senior unit leaders, training officers and NCOs, to identify where and how the measures should be used in relation to the units' overall training strategy. Such an exercise might also guide and focus the future research agenda herein. ■

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