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# Implementation of a Supervisor-Led Resilience Training Extension in the Royal Military College

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**ABSTRACT**

Resilience training offered to military personnel often fails to reinforce training practices into routine military activities. We describe the implementation of a supervisor-led after action review designed to provide personnel with frequent opportunities for the supervisor reinforced application of resilience training skills at work. This paper provides a roadmap for engaging supervisors to support this program and details strategies used across its design and their contribution to implementation fidelity. Strategies included iterative stakeholder engagement in co-design and the use of mixed-methods data collection, including field observational ratings, open ended survey questions, and focus group interviews. The design and implementation process are reported in two phases: initial and re-implementation phases. Chi-square analyses and t-tests of initial phase data indicated that the after action review designed to guide the application of resilience training skills was distinct from preexisting after action reviews of tactical skills and drills. Reflexive interpretations of instructor feedback guided refinement to the extension and subsequent re-implementation phase data indicated implementation fidelity. When engaging leaders and resilience non-specialists in activities that support military resilience training, we recommend involving stakeholders in the design and implementation process, responding flexibly to their concerns, and balancing their experienced work change demands with appropriate resources.

Military resilience training is designed to mitigate the risk posed by stressors by imparting skills that enhance trainees' likelihood of sustaining or rapidly resuming functioning (e.g., mental health, performance) during or following exposure to risk (e.g., Cohn & Pakenham, 2008; Kalisch et al., 2017; Lester et al., 2011). To date, resilience training has achieved some success in military settings (Scheuch et al., 2021; Vanhove et al., 2016). For example, officer cadets provided with resilience training reported greater motivation and positive affect and demonstrated lower cortisol increases after stressor exposure when compared to a control group (Zueger et al., 2023) and self-rated resilience has predicted lower perceived stress and mental distress, and better military performance during basic military training (Sefidan et al., 2021). However, resilience training skills have been largely taught by subject matter experts (e.g., psychologists), in isolated didactic sessions, due to their nature (e.g., thought re-appraisal; Cohn & Pakenham, 2008) and has seldom made use of leadership to enhance outcomes (c.f. Sims & Adler, 2017). Yet, supervisors may play an influential role in creating post-training conditions that embed training skills into routine activities to support training outcomes and avoid deficit returns on training investments (Govaerts & Dochy, 2014). In response to the dearth of guidance regarding how supervisors may be engaged to integrate resilience training skills at work and bolster personnels' resilient capacity development, we leverage lessons learned from the design and implementation of an effective supervisor-led extension to Self-Reflective Resilience Training (SRT) at the Royal Military College (RMC) and provide recommendations.

## The resilience training approach

SRT encourages the development of resilient capacities (e.g., coping strategies), by teaching systematic adaptive forms of self-reflection on the coping process

following moderate stressors. Self-reflection on the coping process involves cognitive practices whereby individuals are encouraged to consider their response to stressors, the nature of stress triggers, opportunities for growth, evaluation of coping application, and opportunities for the refinement and extension of coping practices (Crane et al., 2019). This approach to training is based upon the Systematic Self-Reflection Model of Resilience (Crane et al., 2019) that considers moderate everyday stressors as opportunities to develop coping self-insight that propels refinement to resilient capacities, when scaffolded by aforementioned self-reflective practices. Two randomized controlled trials support the efficacy of SRT in military officer training (Crane et al., 2019; Falon et al., 2021).

### Integrating self-reflection on coping into the workplace

The current supervisor-led extension of SRT involved providing opportunities for trainees to self-reflect on their coping with demanding routine activities. Providing opportunities for the application of trained behaviors *in situ* encourages the generalization and maintenance of skills, thus enhancing training outcomes (Salas & Cannon-Bowers, 2001). Supervisor's daily contact with subordinates mean that they are acutely aware of the demands faced by personnel, and thus positioned to recognize opportunities to apply self-reflection on coping. Moreover, supervisors can feasibly be involved in a program of this nature as they do not require expertise in coping skills to guide self-reflection on the coping process. Rather, supervisors would be required to stimulate self-reflection, as they would for other performance development activities (e.g., Anseel et al., 2015), but with a focus on the coping process. Through direct instruction, coaching, and modeling, supervisors have a key role in altering subordinate behaviors and attitudes. This may include subordinates' motivation to engage in resilience training, which has been identified as an important determinant of whether military trainees obtain benefit from resilience training (Niederhauser et al., 2022), and subordinates' motivation to transfer training skills into the workplace (Govaerts & Dochy, 2014). Finally, supervisor involvement may be interpreted by personnel as supervisor interest in the personal development, wellbeing, and consideration of the individual (Kottke & Sharafinski, 1988) providing a job-related resource in support of resilience (e.g., Britt et al., 2016). In conclusion, there is a feasible opportunity to involve supervisors in reinforcing SRT skills following routine activities that is also expected to optimally support personnel resilient capacity development.

### Extending and changing the tasks of supervisors

Having noted the feasible and judicious opportunity for supervisors to facilitate self-reflection on coping with work stressors, implementation fidelity requires supervisors to commit to changes in their work behavior. Albrecht et al. (2020) proposed that work change commitment is partially dependent on the balance between the increase in change demands (e.g., increased workload) and change resources (e.g., decision making autonomy). A supervisor-led extension is anticipated to result in change demands, such as role extension (i.e., tasks usually conducted by resilience subject matter experts). To balance these change demands, supervisors must be provided with complementary change resources (e.g., appropriate training). Previously, poor leadership endorsement of resilience training was more destructive to outcomes than not conducting the training (Sims & Adler, 2017). Thus, it is imperative to ensure that change demands are identified during implementation to ensure that supervisors are appropriately resourced.

### The present study

The current study reports the design and implementation of a novel supervisor-led extension to self-reflection resilience training. Although the extension was evaluated as efficacious in supporting cadet resilience above and beyond the original training alone (Kho et al., 2023), a recent review of organizational resilience training (Scheuch et al., 2021) outlined the need for more detailed reporting on resilience training design and implementation to clarify contributors to success. Thus, the current study addressed the research question "How can a supervisor-led extension to resilience training be successfully designed and implemented?". In answering this research question, the current study contributes: (1) an example of how supervisors can integrate resilience training skills into the workplace, (2) guidance for researchers and practitioners interested in engaging supervisors in this manner, and (3) an example of how to approach the design and implementation process of a resilience training extension. Aligned with the methodological framework for design and implementation adopted in this study (Intervention Mapping framework, Eldredge et al., 2016) and principles of action research (McNiff, 2013) this study was iterative and conducted in two phases: an initial implementation and re-implementation phase.

## General methods

### Research context

The RMC is an Army officer training school where cadets are trained in leadership, organizational and soldiering skills, and tactical knowledge. The current study occurred in the second of three 6-month stages of training, known as second-class (for details see: Crane et al., 2019; Falon et al., 2021). Although officer training does not uniquely potentiate risk to functioning, cadets experience a range of stressors and the RMC leadership team were acutely aware of the opportunity to develop cadet resilience to such stressors. The researchers and RMC leadership formed a working party aimed at the SRT extension, named integrated Self-Reflection Resilience Training (iSRT) to support cadet capacities for resilience.

### The development of a supervisor-led extension to self-reflection resilience training

SRT reinforces five self-reflective practices based upon the Systematic Self-Reflection Model of Resilience (Crane et al., 2019), including: (1) supporting self-awareness *via* reflection on initial stressor reactions, resilient capacities applied to manage stressors, and situation relevant values and goals; (2) identifying triggering events; (3) reflecting on stressor context learning opportunities; (4) evaluating resilient capacity application in relation to values and goals; and (5) planning to improve one's coping process. These skills are taught *via* a 40-min brief and five 15-min reflective writing sessions spaced a minimum of 1-week apart. The brief introduces trainees to self-reflection on the coping process and contains an activity to identify personal values and goals. Reflective writing sessions encourage participants to reflect on recent stressors (event-based) using questions designed to guide them through the five self-reflective practices (see: Crane et al., 2019).

### Initial consultation: identification of methods for integrating resilience training

RMC leadership identified that cadet supervisors (hereon referred to as instructors) were most appropriate to guide self-reflection on the coping process at work. The planning team sought opportunities to integrate the self-reflection on coping harmoniously, by linking it to existing practices familiar to instructors. Given that After Action Reviews (AARs[1]) are

common practice in the military (Ellis & Davidi, 2005) for clarifying development and success in the performance of skills and drills, it was determined that a coping process reflection activity could follow the same structure as a traditional 'skills and drills' AAR.

AARs were typically performed following field exercises. Second-class cadets completed two field operations (a 17-day and 14-day operation). Each day, cadets divided into independent platoons conducted three, six-hour long field exercises that simulated warfighting scenarios (e.g., executing an ambush). For each field exercise, cadets rotated in leadership positions (i.e., platoon commander), to be assessed for their ability to lead a group of their peers. AARs focused on the tactical execution of an exercise and were led by instructors. Thus, instructors were well positioned to facilitate cadet post-field exercise reflections with a focus on the coping process. Having determined the facilitator and method for integrating self-reflection on the coping process into work, the research team commenced the design of the iSRT comprising: (1) a coping process focused review (referred to as "Mental Fitness After Action Reviews (MF-AAR)" to be analogous to After Action Reviews) and (2) supervisor training and supporting materials.

### Development of the Mental Fitness After Action Review

The MF-AAR was a question set designed for instructors to guide cadets through self-reflection focused on coping with stressors that affected performance. To inform the MF-AAR design, author MC attended four field exercises at RMC in 2017 and 2018 to develop familiarity with field exercises and AARs. Thereafter, our research team created eight initial MF-AAR questions that mimicked the structure and style of skills and drills AARs, but distinctly reinforced the SRT self-reflective practices. The themes of the eight questions were: (1) identifying field exercise learning opportunities, (2) identifying stressors in the field exercise, (3) identifying the importance of coping with specified stressors for future leaders, (4) reflecting on past encounters and coping with similar stressors, (5) evaluating coping strategies that were effective, (6) evaluating coping strategies that were ineffective, and (7) identifying behaviors to change and (8) repeat in future[2].

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1. After Action Reviews are also referred to as 'After Event Reviews' or 'After Activity Reviews'.

2. The Mental Fitness After Action Review Questions are available on request for research purposes.

## Development of supervisor training and support materials

Supervisor training and support materials were designed to teach instructors how to conduct MF-AARs. The two-hour training session led by MC included information on SRT, common stressors types, practical coaching skills (e.g., open-ended questions), implementation instructions, example scenarios, and guided practice. Instructors were advised to conduct MF-AARs after field exercises but could complete MF-AARs in one-on-one settings (i.e., the platoon commander), the platoon leadership group (i.e., the platoon commander, platoon sergeant, and platoon signaler), or with the entire platoon (i.e., 35-36 cadets). The support materials comprised MF-AAR questions, a short summary of self-reflection on the coping process, and the description of common stressor types (frustration, ambiguity, loss of control, pain, uncertainty, and threat). Materials were revised by RMC leadership to ensure consistency with military practices and vernacular.

## Participants and design

We received approval from the Departments of Defence and Veterans' Affairs Human Research Ethics Committee prior to the commencement of this study (Protocol Number 086-18). The study was conducted during a group-randomized controlled trial evaluating the outcomes of the iSRT extension and are reported in Kho et al. (2023). The unique data reported in this paper addresses distinct research questions regarding the design and implementation of iSRT. A total of 212 cadets began second-class at the RMC in January 2019 and 168 were involved in the trial (69.4% male, $M_{age}$ = 23.14, $SD_{age}$ = 3.97). Cadets were assigned to six platoons of 35 or 36 cadets. Each platoon was assigned four or five instructors who were responsible for the training and assessment of their allocated platoon.

Three platoons were randomly assigned to the control condition and participated in SRT only. The researchers limited control instructors' ($n = 12$) awareness of the iSRT program by not providing them with iSRT supervisor training or support materials. Intervention instructors were requested to not discuss the iSRT with control instructors. Control platoons completed skills and drills AARs only.

Cadets in the remaining three platoons were assigned to the intervention condition and participated in SRT and iSRT. In January 2019, their instructors ($n = 13$) received iSRT supervisor training and support materials. Intervention platoons completed skills and drills AARs and MF-AARs.

## Procedure

We applied the Intervention Mapping framework (Eldredge et al., 2016), a framework for health program implementation, and principles of action research (McNiff, 2013), an approach to generating improvements to practice in real-world settings, to support iSRT design and implementation. The Intervention Mapping framework recommends: (1) iterative design, (2) stakeholder focus, and (3) consideration for the ecological context during program implementation. As MF-AARs occurred across two field-operations, its design and implementation was divided into initial and re-implementation phases to allow for adjustments between phases. This is endorsed in the cyclical process of action research, in which improvements are made through an iterative and reflective learning process. As key stakeholders, the intervention instructors were involved as co-designers for the MF-AAR. Instructors' perspectives on implementation demands allowed the research team to respond with program resources and modifications. Likewise, action research suggests that democratic participation of stakeholders should occur to co-construct improvements. An ecological focus recognizes that the physical and social environment has a strong effect on behavior (Eldredge et al., 2016). Field operation observations captured implementation fidelity and facilitated an appreciation of the officer training environment. Action research also emphasizes the need for contextualized inquiries to address setting specific issues. The iterative, collaborative, and ecological study design is visually presented in Figure 1.

## Transparency and openness

The study data is not available, as data obtained from the Department of Defence is confidential. All analyses were completed using SPSS Version 26 (IBM Corp, 2019) and analysis code is available on the Open Science Framework.[3] No data were excluded from analyses. Full observational rating scales are provided in Supplementary A.

## Initial implementation phase methods

The initial implementation phase was designed to answer the following research questions: (1) Are instructors conducting MF-AARs with fidelity? (2) Are

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3. Open Science Framework Link https://osf.io/769pj/?view_only=bbdc7b41d7264628a2e57e4ad65ac2a7.
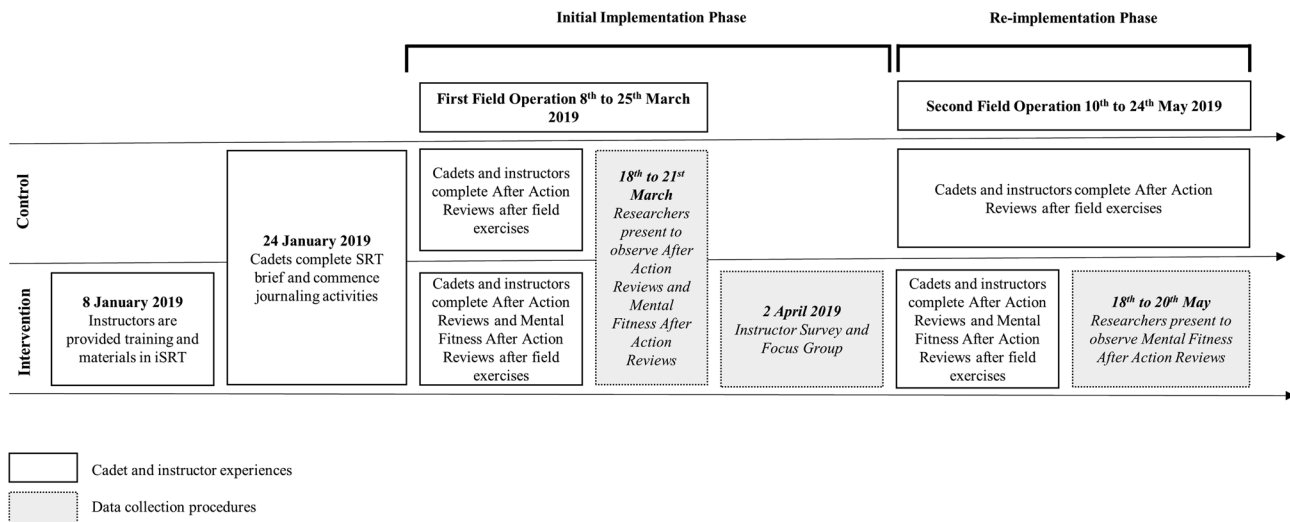
**Figure 1.** Timeline of cadet and instructor intervention experiences and data collection procedures across conditions. SRT: Self-Reflection Resilience Training; iSRT: integrated Self-Reflection Resilience Training.

MF-AARs uniquely eliciting cadet self-reflection on the coping process as intended? (3) What are the perspectives of instructors related to (a) improving the usability of MF-AARs? and (b) supporting cadet engagement in the program? In March 2019 the first field operation occurred with two authors (MC and MK) and two psychology masters students, present for four days to observe field exercises. A total of 22 field exercises were observed across all platoons and divided equally between conditions. Seven (31.81%) observations were double rated to assess inter-rater reliability, yet observers were unblinded to condition assignment.

### Measures

#### Observed frequency of use of Mental Fitness After Action Review Questions

Observers recorded the frequency of MF-AAR questions used in intervention platoon MF-AARs and control platoon AARs. Agreement occurred on 92.9% of double rated occasions and questions were rated as observed when a rating discrepancy occurred.

#### Observed instructor encouragement of self-reflection on the coping process

Five multi-item observation rating scales (see supplemental Table S1 for intra-class correlation coefficients [ICC]) were designed to assess instructor encouragement of the five self-reflective practices using a seven-point scale from 1 (strongly disagree) to 7 (strongly agree). Rating scales were used to compare the extent that control platoon AARs and

intervention platoon MF-AARs encouraged self-reflection on the coping process. Scores on the five scales loaded onto a single factor explaining 95.53% of the variance (factor loadings = .96–.98). Therefore, a single score for instructor encouragement of self-reflection on the coping process was created by averaging the five scale means.

#### Observed cadet engagement in self-reflection on the coping process

Cadet engagement in self-reflection on the coping process was rated with a single item ranging from 1 (minimally/less than 10% of the time) to 4 (heavily/at least 90% of the time). The item contained behavioral anchors that described whether the cadet(s) demonstrated self-reflection consistent with the five self-reflective practices. The ICC for this rating scale on seven double rated observations was .97.

#### Stakeholder feedback

Instructor feedback was collected after the initial implementation in April 2019, *via* open response survey questions including: (a) what worked well, (b) what did not work well, (c) what implementation challenges were, and (d) additional suggestions. Immediately following survey completion, instructors were provided the opportunity to elaborate on their responses and discuss challenges and possible solutions during a 1-h semi-structured focus group conducted with two authors (MK, MC) Researcher presence in the field environment also allowed opportunities for unsolicited feedback from training instructors. Unsolicited feedback that advised conclusions are included

within the results. Feedback was then used to inform revisions to the MF-AAR and implementation instructions.

## Analysis strategy

Pearson's Chi-Square was used to observe deviations from expected frequencies of MF-AAR question use between conditions. Independent samples $t$-tests compared ratings for observed instructor encouragement of and cadet engagement in self-reflection on the coping process between conditions. Instructor feedback was analyzed *via* an interpretivist philosophy (Lin, 1998) using a reflexive approach to text analysis. The weighting of individual instructor feedback was based on group consensus obtained during the focus groups.

## Initial implementation phase results

Table 1 demonstrates that the most frequently used questions during the intervention MF-AARs were Q2, identifying stressors in the field exercise (100%); Q3, identifying the importance of coping with specified stressors for future leaders (90.9%); and Q7 and Q8, identifying behaviors to change (90.9%) or maintain (81.8%). According to observations, some questions were asked consistently whilst others were asked in less than half of observations, indicating incomplete implementation fidelity. Some questions were also asked in the skills and drills AARs occurring in the control group. Most frequently; Q1, identifying learning opportunities (63.6%), Q7 (63.6%) and Q8 (54.5%). However, these questions were asked in the context of the execution of skills and drills, rather than the coping process. Having noted the presence of MF-AAR questions in control platoon AARs, chi-square analyses confirmed that questions that specified the coping process were more likely to be asked in the intervention platoons than control platoons. Further, observed instructor encouragement of self-reflection on the coping process was higher in the intervention ($M=5.11$, $SD=1.18$) than the control platoons ($M=1.43$, $SD=0.57$; $t(20) = 9.28$, $p < .001$). Ratings of cadet engagement of self-reflection on the coping process were higher in intervention platoons ($M=1.80$, $SD$, $= .70$) than control platoons ($M = .27$, $SD =.47$; $t(20) = 6.02$, $p < .001$). Accumulatively this suggested that MF-AARs uniquely

**Table 1.** Observed Frequency of Use of Mental Fitness After Action Review Questions During Initial Implementation Phase Observations.

| Question | Theme | Intervention % Used ($n=11$) | Control % Used ($n=11$) | $\chi^2$ |
|---|---|---|---|---|
| 1 | Identifying learning opportunities in the field exercise | 72.7 | 63.6 | <0.00[a] |
| 2 | Identifying stressors in the field exercise | 100.0 | 9.1 | 18.33*** |
| 3 | Identifying the importance of learning how to manage the stressor experience for future leaders | 90.9 | 0.0 | 18.33*** |
| 4 | Reflection on past encounters and coping with similar stressors | 45.5 | 0.0 | 4.14[a]* |
| 5 | Evaluation of coping strategies that were beneficial | 54.5 | 0.0 | 5.73[a]* |
| 6 | Evaluation of coping strategies that were not beneficial | 45.5 | 0.0 | 4.14[a]* |
| 7 | Identifying behaviors to change for future encounters | 90.9 | 63.6 | 1.04[a] |
| 8 | Identifying behaviors to repeat for future encounters | 81.8 | 54.5 | 0.84[a] |

*$p < .05$.
**$p < .01$.
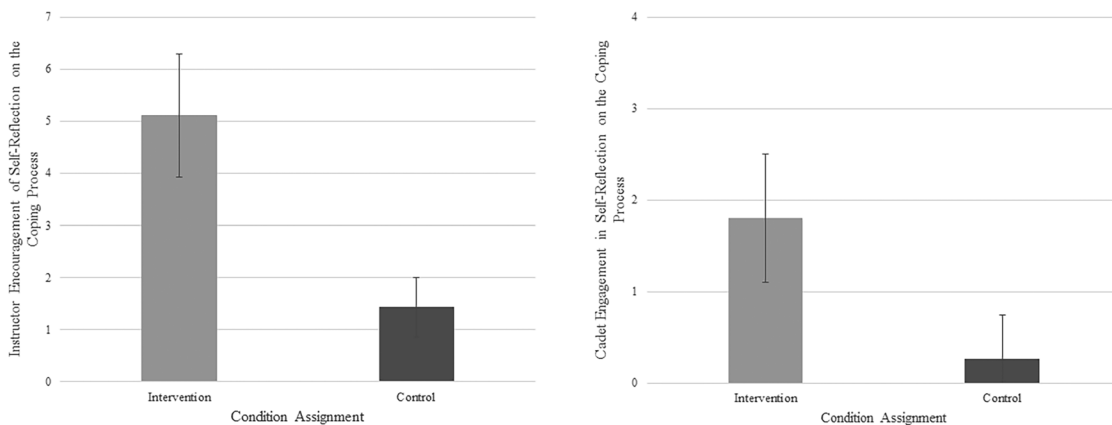***$p < .001$.
[a]Continuity corrected value.



**Figure 2.** Means between conditions of observational ratings for instructor encouragement of self-reflection on the coping process and cadet engagement in self-reflection on the coping process.

elicited cadet self-reflection on the coping process. Mean observational ratings between conditions are presented visually in Figure 2.

### Intervention instructor perspectives on iSRT challenges

Instructors raised challenges in: (a) improving MF-AAR usability and (b) supporting cadet engagement in self-reflection on the coping process.

### Implementation time

An instructor wrote in the survey that the MF-AAR "Takes a lot of time to implement" and this issue was also raised in the focus group. Instructors conducted field exercises from 0600h to 2400h resulting in a saturated schedule. The iSRT required instructors to conduct an additional task under unchanged time restrictions.

### Shifting from skills and drills to coping focused reviews

Instructors reported that it was difficult to shift cadets from reflecting on skills and drills performance during the exercise to the effect of the coping process on performance. Cadets "adapted their answers to reflect the old AAR questions or they answered the prompted question" and were "unable to separate feelings to military related responses."

### Limited cadet engagement

Instructors noted three challenges with engaging cadets in the MF-AAR. First, instructors felt that the MF-AAR were cognitively demanding for fatigued cadets. Second, instructors noted potential misalignment with military norms on emotional expression. Cadets were said to be, "hesitant in providing these thoughts to both the group or in one-on-one debriefs" noting that "the type of people that are attracted to the ADF [Australian Defence Force] are also less inclined to truthfully express emotions." Third, instructors believed that cadets' "feel like everything is an assessment" despite descriptions of the MF-AARs as non-assessable. This was said to lead to cadets being "Unable to open up with someone about mental fitness/resilience" and "more assessment focused instead of trying to build resilience."

### Ad-hoc feedback

During initial phase implementation observations intervention instructors approached an author (MC) with MF-AAR implementation challenges. First, an instructor reported that cadets misinterpreted the stressor type "frustration" as the feeling of frustration. The stressor type "frustration" was provided in support materials to describe the experience of barriers to goal attainment, rather than the outcome (feelings of frustration). During the focus group instructors agreed that the stressor type should be renamed. Second, an intervention platoon instructor reported low confidence in completing the MF-AAR. They requested a demo and author (MC) conducted an exemplar MF-AAR in field.

### Intervention instructor proposed solutions

Instructors suggested solutions to identified challenges within the same focus group. The instructors were in favor of shortening the MF-AAR to Q2, identifying stressors, Q3, identifying the importance of coping with specified stressors, and Q7 and Q8, identifying behaviors to change or maintain. These were questions that they perceived to use most often and best elicited cadet engagement. In assisting cadets to shift focus, instructors recommended the flexibility to delay a MF-AARs, particularly for field exercises ending at 2400 hrs. The instructors suggested priming cadets for the self-reflection activity by providing cadets with MF-AAR questions prior to the field exercise and suggested an acronym for the six stressor types to be included in support materials to facilitate recall.

### Initial implementation phase discussion

Data collected during the initial implementation phase informed six revisions to the iSRT. First, to manage time constraints the MF-AAR was reduced to Q2, Q3, Q7 and Q8 as recommended by instructors and as observations confirmed were most frequently used. The frequency rates may also suggest that instructors were less comfortable asking questions that deviated more from the traditional AAR, consistent with change hesitancy (Albrecht et al., 2020). Second, to assist cadets' shift their focus between the AAR to the MF-AAR, the intervention instructors agreed to prime cadets by providing them with the MF-AAR questions prior to leading their exercise. Third, to manage cadet fatigue, instructors were permitted to complete MF-AAR at a timings and frequencies they deemed appropriate (i.e., after a rest period), whilst maintaining regular cadet exposure to MF-AAR. Fourth, to refine the wording of stressor types, author (MC) suggested "frustration" to be replaced by

"hindrance." Instructors during the focus group approved of this change. The stressor types were formatted as the acronym CHAT-UP (loss of Control, Hindrance, Ambiguity, Threat, Uncertainty and Pain) and was provided in revised supporting materials. Fifth, to alleviate cadet assessment concerns, instructors agreed to consistently remind cadets that their MF-AAR responses were non-assessable and an instructor not assessing the platoon commander's performance would conduct the review. Finally, to support instructors' perceived capability in conducting MF-AAR, the researchers provided further examples of coaching skills (e.g., prompting). Having provided intervention instructors with revised iSRT training and support materials the re-implementation phase began.

### Re-implementation phase methods

Data collection in the re-implementation phase addressed the following research questions: (1) Are instructors conducting MF-AARs with fidelity and (2) Are MF-AARs eliciting cadet self-reflection on the coping process? In May 2019, the second field operation was conducted and with two authors (MC and MK) present for 3 days to observe five field exercises and MF-AARs across all intervention platoons. One MF-AAR was observed by both authors for rater calibration. No control platoons were observed.

### Measures

### Observed frequency of use of Mental Fitness After Action Review Questions

As previously, observers recorded the frequency of each questions' use.

### Observed instructor prompting for further responses and cadet engagement in self-reflection on the coping process

A rating for whether instructors utilized iSRT supervisor training skills (e.g., open-ended prompts) was developed due to the reported challenges in cadet engagement. This rating assessed whether instructors prompted for further responses during MF-AARs and ranged from 0 (not at all) to 3 (a lot). The behavioral anchors of the rating for cadet engagement in self-reflection on the coping process were removed and its anchor labels amended to reduce rater cognitive load (due to the rapid pace of the MF-AARs).

The rating scale ranged from 0 (not at all engaged) to 4 (very engaged).

### Re-implementation phase results

In all observations of cadet platoons conducting post-serial activities, instructors asked every question of the briefer MF-AAR. In all but one occasion, instructors were observed to prompt for cadet responses. The cadet platoons were also consistently rated as engaged in self-reflection on coping during the MF-AARs. Most frequently groups of cadets were rated as "Fairly Engaged" as opposed to "Very Engaged" or "Somewhat Engaged." During the re-implementation observations, an intervention instructor shared with an author (MK) that they did not believe resilience could be trained. This instructor had chosen not to lead MF-AARs allowing their colleagues to facilitate them instead.

### Re-implementation discussion

Improvements made to the MF-AAR appeared to support implementation fidelity and cadet engagement in the intervention. Although each question of the initial MF-AAR protocol was designed to elicit cadet self-reflection on coping, its length appeared to limit implementation fidelity. In contrast, the shortened MF-AAR was consistently implemented across all observations. Further, instructors appeared to be regularly prompting cadets with further questions aligned with the training and support provided after the initial implementation phase. Observations also indicated a positive indication of cadet engagement and acceptance of the extension. It is worth noting that it was still possible for instructors to still hold reservations about the intervention which was clear from ad-hoc feedback.

### General discussion

Supervisors guiding the application of resilience training skills to real work stressor experiences is anticipated to further support personnel's resilient capacity development to improve the efficacy of resilience training (Vanhove et al., 2016) and increase the likelihood that resilience training investments are not squandered. This study addressed how a supervisor-led extension to resilience training could be successfully designed and implemented. This study contributed: (1) the MF-AAR, a coping focused post-activity review that allowed supervisors to integrate SRT skills into

the workplace, (2) guidance for researchers and practitioners in engaging supervisors in implementing MF-AARs, and (3) illustrates an approach to designing and implementing a resilience training extension.

Adapting an existing performance development activity into a method for integrating self-reflection on the coping process at work was considered a key enabler of the extension. This design decision was intended to enhance instructor familiarity with the extension and support implementation fidelity. As AARs are commonplace in military settings (Ellis & Davidi, 2005), but also in civilian contexts (e.g., emergency services, Crowe et al., 2017; medicine, Reiter-Palmon et al., 2015), research practitioners interested in extending resilience training *via* supervisors in a variety of contexts may consider adapting existing performance development activities. From this initial design decision, iterative co-design with instructors supported refinements to enhance implementation fidelity and intervention sustainability.

The effective engagement of instructors was essential to implementation fidelity. A key strategy to engagement was recognizing and responding to change demands (e.g., time pressure) with program flexibility and appropriate change resources. Adjustments to the iSRT (e.g., reducing MF-AAR length) produced solutions that supported instructor commitment yet maintained consistency with the philosophy of the resilience training. Resources provided were designed to meet demands (e.g., autonomy in deciding MF-AAR format and timing) to foster change commitment (Albrecht et al., 2020). Identified change demands and resources, and adjustments to iSRT were informed by intervention instructors as key stakeholders. Intervention instructors were given several avenues to convey constraints, perceived personal capability, and resilience training attitudes. Researcher presence in the application environment provided opportunities to aid instructors in leading MF-AARs and discuss apprehensions. These instances speak to the importance of timely and organic communication avenues as neither issue was captured during the survey and focus group. Recall may have been limited during formal feedback acquisition, given time-delay or distance from the implementation context. Instructors' participation supported a sense of ownership of solutions, acknowledging and capitalizing on their experience.

The current study responded to the call to report resilience training design and implementation in greater detail (Scheuch et al., 2021). The design and implementation of iSRT was guided by the Intervention Mapping framework (Eldredge et al., 2016) and was consistent with principles of action research (McNiff, 2013). This approach involved: (1) an iterative and cyclical process for refinement, (2) the democratic participation of stakeholders, and (3) an appreciation of the ecological context to generate realistic solutions. As mentioned, this approach promoted instructor engagement, however it also enabled the assessment of implementation fidelity with tailored measures that were refined according to encountered challenges (i.e., instructor prompting). Further, this approach enabled the assessment of cadet engagement in self-reflection on coping during MF-AARs to establish whether the extension was uniquely eliciting intended behaviors. Accumulatively, the approach contributed to the final iSRT design which can feasibly encourage the practice of SRT skills in the officer training context with effective results (Kho et al., 2023). However, limitations of utilizing this design and implementation approach did occur.

## Limitations and future directions

Intervention instructors had the autonomy to conduct MF-AAR in a variety of settings, timings, and frequencies. However, we failed to consistently capture these details due to the workload implications on instructors. Thus, we cannot quantify MF-AAR optimal dosage or format. Where feasible, it is recommended that researchers keep account of specific implementation details. The research team was flexible in changing the rating scales between iterations. Although ratings indicated that instructors prompted for further answers and cadets engaged in self-reflection on the coping process, the study cannot determine whether either improved following program refinement. Research practitioners should consider the benefits and costs of flexibility in measures during implementation, early in the design process. Observers who rated implementation were not blind to condition, as the intervention was readily distinguishable, potentially biasing scores. Whilst researchers' understanding of iSRT facilitated useful interactions with instructors, future research may remove the potential effect of bias by selecting observers who are uninformed of iSRT content and its desired outcomes. Finally, contamination bias was potentially present if control instructors learned elements of the intervention and consequentially altered their behavior (Robinson et al., 2020). Intervention instructors were advised not to share iSRT materials to minimize risk and observations in control platoons were conducted to monitor risk, however the potential for contamination bias remains given it was not feasible to remove

all interactions between instructors or monitor all field activities in this practical setting.

## Concluding statement

The findings of this study highlight the opportunity in (1) the self-reflective approach to resilience training's ability to be supported by supervisors and (2) modifying existing performance development activities to support the practice of self-reflection on coping at work. In utilizing these opportunities military organizations provide personnel with immediate and frequent instances to practice resilience training skills at work. This has the potential to extend upon current outcomes achieved in resilience training (Kho et al., 2023; Vanhove et al., 2016, Zueger et al., 2023) and support personnel resilient capacity development to bolster their success during military activities (Sefidan et al., 2021).

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## Disclosure statement

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