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Observer-Based Team Measures for the Military Advisor Training Academy

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The U.S. Army established Security Force Assistance Brigades (SFABs) in 2018 to meet the growing demand for U.S. Forces to train and advise foreign partners. Once candidate advisors are selected, they train for their advisor roles at the Military Advisor Training Academy (MATA). The MATA has made good strides in defining, assessing, and teaching individual advisor attributes as part of the Combat Advisor Training Course (CATC). However, they have not yet attended to the team aspect of SFABs. The purpose of this research was to explore the extent to which teamwork was critical to the CATC and develop a set of observer-based teamwork measures instructors could use as part of the course assessment. Instructor interviews and training observations were conducted to develop a set of 24 observer-based items measuring team cohesion and 10 team process constructs as defined by Marks et al. (2001). At the request of MATA, an optional 11-item measure was also identified. Future research to further assess the validity, reliability, and usability of the teamwork measures would be beneficial.

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TEAM MEASURES FOR THE MILITARY ADVISOR TRAINING ACADEMY

EXECUTIVE SUMMARY

Research Requirement:

The U.S. Army established Security Force Assistance Brigades (SFABs) in 2018 to meet the growing demand for U.S. Forces to train and advise foreign partners. Soldiers volunteer for SFAB assignments and then go through a selection and training process before they are assigned to their SFAB teams and deployed. Once selected, they train for their advisor roles at the Military Advisor Training Academy (MATA). The MATA has made good strides in defining, assessing, and teaching individual advisor attributes as part of the Combat Advisor Training Course (CATC). However, they have not yet attended to the team aspect of SFABs. The purpose of this research was to explore the extent to which teamwork was critical to the CATC and develop a set of observer-based teamwork measures instructors could use as part of the course assessment.

Procedure:

Researchers conducted two sets of 90-minute interviews with nine CATC instructors over the phone and Microsoft Teams. The purpose of the first set of interviews (five instructors) was to gather an understanding of the course and gain subject matter expert insight into the importance of 14 team constructs. In some cases, different constructs emerged through the discussion. The second set of interviews (four instructors) was used to gather feedback on 60 observer-based items representing a revised set of team constructs. Most of these items originated from existing scales and prior unpublished research. The set of items was revised based on the feedback. Researchers then spent two weeks observing the final course module, making team assessments using the updated items, and meeting with instructors and course leadership to gather feedback on the items.

Findings:

Based on the interviews and observations, a final set of 24 observer-based items assessing 11 team constructs were selected (the 10 team process constructs and cohesion). The remaining three constructs - efficacy, information exchange, and team initiative - were not selected for assessment due to conceptual overlap in the items and the instructor perceptions, the importance of those constructs, and the degree to which they could be observed. At the request of MATA leadership, a shorter measure was created, which included a single item for each of the 11 constructs selected. Finally, a 4-point response scale was created which assessed the degree of improvement needed for the team with a fifth not applicable option.

Utilization and Dissemination of Findings:

Qualitative evidence supported the hypothesis that teamwork is critical for SFABs, both for deployed SFABs and the ad hoc advisor teams training at the MATA. Further, this research supports past assertions that the Marks et al. (2001) taxonomy could be used as a guide for assessing and researching team processes (Beal et al., 2003; LePine et al., 2008; Mathieu et al.,

2020; Mullen & Copper, 1994). All ten team processes were deemed as important for SFABs as well as team cohesion. Further, the final scale utilized existing measures of teamwork. Most of the items originated from self-report scales but were deemed valid for instructor ratings as well. Future research to further assess the validity, reliability, and usability of the teamwork measures would be beneficial.

TEAM MEASURES FOR THE MILITARY ADVISOR TRAINING ACADEMY

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Introduction

The U.S. Army established Security Force Assistance Brigades (SFABs) in 2018 to meet the growing demand for U.S. Forces to train and advise foreign partners. SFABs are the Army's dedicated conventional organization for conducting security force assistance. Each SFAB is commanded by a Colonel or Brigadier General. They are made up of approximately 815 Soldiers organized into 60 multifunctional teams consisting of four to eight Soldiers (CRS, 2022). SFABs are flexible entities and can be deployed in a variety of ways. Individual advisor teams may be sent to work in coordination with country teams or an entire brigade could be deployed into theater.

Soldiers volunteer for SFAB assignments and then go through a selection and training process before they are assigned to their SFAB teams and deployed. Once selected, they train for their advisor roles at the Military Advisor Training Academy (MATA). As of spring 2022, selected advisors attend the Combat Advisor Training Course (CATC), version 2.0. It is made of four 2-week blocks of instruction, running Monday through Friday. At the beginning of the course students are put into teams that mimic SFABs in the field and are assigned roles that best align with their technical expertise or career experience. They remain assigned to their teams for the first two blocks of instruction. Block 1 consists mostly of classroom training and covers content critical to understanding the role of the advisor, to include basic cultural and language training. Block 2 devotes a week to training medical skills (where students earn their Tactical Combat Casualty Care (TC3) certificate) and a week to fires training. For the medical week, students take part in a mass casualty scenario on the last day. It is a complex team task and incorporates manikins and medical injuries simulated by instructors. During Block 3, the teams are disassembled, and students sign up for two weeks of specialized individual training. They study a topic for one week and a second topic during week two. Example topics include foreign weapons, non-standard logistics, and advisor battle staff. The purpose of this individual training is to broaden their knowledge base and skill set. The teams then come back together for Block 4, also referred to as the FTX (field training exercise). The FTX includes one week of role player supported intensive training in a Military Operations in Urbanized Terrain (MOUT) site with a complex scenario and role players. The second week continues but in a more austere environment and with additional complexity in the scenario.

The CATC utilizes instructors to deliver the training, manage the scenario-based events, assess the students, and provide feedback. The MATA has made good strides in defining, assessing, and teaching individual advisor attributes as part of the CATC. However, they have not yet attended to the team aspect of SFABs. The purpose of this research was to explore the extent to which teamwork was critical to the CATC and to develop a set of observer-based teamwork measures that instructors could use as part of the course assessment.

Teamwork in SFABs

Teams are commonly defined as two or more individuals, who have specific roles, perform interdependent tasks, are adaptable, and share a common goal (Salas et al., 1992). U.S.

Army Doctrine (U.S. Department of the Army, 2020) indicates that deployed SFABs fit the definition of a team. Individual advisors vary in terms of their rank (SFABs include both non-commissioned officers (NCOs) and officers of varying ranks) and technical expertise (SFABs are made up of individuals with specific and unique technical expertise). Based on their expertise, advisors are assigned to specific roles in the SFAB. The members must work together and use their shared and unique knowledge to meet team objectives. This includes engaging in synchronous, team-level, interdependent tasks related to planning, operations, administration, maintenance, and supply activities. These are referred to as internal functions. SFAB team members also conduct external functions, where they work directly with their foreign security counterparts. External functions are largely conducted by individual advisors and include limited, if any, communication with other SFAB team members. However, it is imperative that the team members come back together to share information and plan based on their individual advising experiences. The pattern of individual advising followed by team information sharing and planning is cyclical.

At the MATA CATC, students do not train with the SFAB they will be assigned to. Instead, the CATC assembles students into teams and assigns them roles which mirror (as much as possible) deployed SFAB teams. They also set up the training experience to mimic real world SFAB team tasks. During the FTX, student team members will meet every morning, mid-day, and evening to communicate and plan as a team. They then separate and conduct their individual advising activities between those sessions.

Assessing Teamwork

Although advisor teams include a large individual performance component, there is enough evidence (e.g., interdependence of individual advisor tasks) to suggest understanding and assessing teamwork could be valuable for SFABs, particularly in a training setting like the CATC. There are a multitude of options for team assessment. One can measure the outcome of a team (how well they performed their team task), the affective and motivational states of the team (how they think and feel about being a team), and their team processes (how the team members interact and behave with one another).

Over the past several decades, researchers have paid special attention to team processes and their role in team performance. This research intended to assess the value of measuring and providing feedback on team processes for the MATA student teams. Marks et al. (2001) define team process as “interdependent acts that convert inputs to outcomes through cognitive, verbal, and behavioral activities directed toward organizing task work to achieve collective goals” (Marks et al., 2001, p. 2). Team processes were selected because they are generally considered more observable as they represent the behaviors of the team and how the members are working together. The observability of the construct was an important consideration because the team assessments would be used by instructors (observer-based) and not self-report. As part of their research, Marks et al. (2001) published a taxonomy of 10 team processes. The team process taxonomy is well-cited and has guided numerous empirical investigations (Mathieu et al., 2020). The taxonomy describes three planning processes (mission analysis, goal specification, and strategy formulation and planning), four action processes (monitoring progress towards goals, systems monitoring, monitoring and backup, and coordination), and three interpersonal processes

(affect management, motivation and confidence building, and conflict management). Since its publication, research has noted the value of using the Marks et al. (2001) taxonomy as a guide for assessing and researching team processes (Beal et al., 2003; LePine et al., 2008; Mathieu et al., 2020).

This research also intended to investigate whether team states could be targeted as part of the observer-based assessments. Team states represent how the team is feeling or thinking (Marks et al., 2001) and are important predictors of team performance. For example, team cohesion (the team members' attraction to or liking of the group) and team efficacy (how confident the team is they can perform well as a team) have been shown to correlate with team performance and team processes (Gully et al., 2002; Gully et al., 2012; LePine et al., 2008). Team states can be more difficult to assess via observations. However, within the context of prior unpublished research, the authors have worked with instructors and found they are often able to access team states such as cohesion.

This research also sought to use and adapt existing valid and reliable assessments of team constructs, rather than developing new items from scratch. This included exploring the face validity of using revised self-report measures as observer-based measures. Finally, team assessments were intended to be specific enough to capture constructs with adequate variability across teams, but still broad enough for the same assessment to be used across many team tasks within the training environment. The CATC training scenarios are complex and at the time of this research, the training curriculum was scheduled to undergo future revisions. Our goal was to provide team assessments which could be reused across a variety of team tasks and curriculum changes.

Method

To conduct this research, the team conducted two sets of phone/virtual teleconference interviews. Following the interviews, researchers completed two weeks of onsite training observations and in-person interviews with instructors.

Interview Participants and Procedure

The first set of interviews consisted of five 90-minute sessions on the phone, each with a single MATA instructor and two researchers. Researchers interviewed five instructors (one instructor each for Blocks 1, 2, and 3, and two instructors for Block 4 (FTX)). These interviews were meant to gain an understanding of the course, including what was taught in each block of instruction, how students were assigned to teams within the course, what team and individual level tasks they engaged in, and how the students were assessed. Instructors were also asked questions about general requirements for teamwork and to provide examples of teams who performed well and teams who struggled. Participants were then presented with 14 team constructs (10 team process constructs defined by Marks et al. (2001) and four team states to include trust, cohesion, collaborative problem solving, and situational awareness (Table 1)). The participants were presented with each construct and asked whether that construct was important to SFABs and team tasks at the CATC course. In some cases, researchers were not able to make it through all constructs in the time provided. Therefore, the order in which the constructs were presented was counterbalanced, to ensure each construct was discussed with at least three

participants. During the interviews, three additional constructs emerged as possible targets for team assessment. Those included efficacy, information exchange, and team initiative. Trust, collaborative problem solving, and situational awareness were removed after the first round of interviews, because they were found to be less relevant for the MATA team context.

Table 1

Initial Team Constructs Vetted with Instructors

Construct	Description
Mission Analysis	The identification and evaluation of team tasks, challenges, environmental conditions, and resources available for performing the team's work.
Goal Specification	Activities centered on the identification and prioritization of team goals.
Strategy Formulation and Planning	Developing courses of actions and contingency plans as well as making adjustments to plans in light of changes or expected changes in the team's environment.
Monitoring Progress Toward Goals	Members paying attention to, interpreting, and communicating information necessary for the team to gauge its progress toward its goals.
Systems Monitoring	Activities such as tracking team resources (e.g., money) and factors in the team environment (e.g., inventories) to ensure that the team has what it needs to accomplish its goals and objectives.
Team Monitoring and Backup	Members assisting others in the performance of their tasks (by providing feedback or coaching or assisting with the task itself).
Coordination	The process of synchronizing or aligning the members' actions.
Conflict Management	The manner in which team members proactively and reactively deal with conflict.
Motivating and Confidence Building	Activities that develop and maintain members' motivation and confidence while working toward team goals.
Affect Management	Activities that foster emotional balance, togetherness, and effective coping with stressful demands and frustration.
Cohesion	The shared bond that drives team members to stay together and to want to work together.
Trust*	Willingness of the team members to be vulnerable to the actions of the other team members based on the shared expectation that the other team members will perform particular actions that are important to the team.
Collaborative Problem Solving*	Activities requiring team members to work together to solve problems.
Situational Awareness*	The perception and understanding of a current situation and its elements and history with respect to time and/or space in order to make good decisions when needed.

Note. Based on the first set of interviews, the * constructs were not selected for item development. Three alternative constructs were identified: (1) Efficacy - confidence that the team could work together and perform well; (2) Information Exchange - the team exchanges critical information; and (3) Team Initiative - team members take appropriate action without being directed and understand their priorities and authorities.

The second set of interviews consisted of four 90-minute sessions using Microsoft Teams (a software platform to support distributed video conferencing and screen sharing), each with a single MATA instructor and two researchers. Researchers interviewed one instructor each for Blocks 1 and 2, and two instructors for Block 4[1]. These interviews focused on gathering feedback on a broad team measure of 60 observer-based items representing 14 revised team constructs (the 10 team process constructs defined by Marks et al. (2001), cohesion, efficacy, information exchange, and team initiative) and associated anchor options. These 14 constructs were selected based on instructor feedback regarding importance, understanding, and whether the construct could be observed. Instructors were shown items via screen sharing and asked to think back to the last class they instructed and how they would rate the team they were paired with. The initial scale had five options: 1=strongly disagree-rarely observed and needs much improvement; 2=disagree-often NOT observed and needs improvement; 3=agree-almost always observed, with little room for improvement; 4=strongly agree-almost always observed with no room for improvement; and N/A=not applicable. Participants were also asked to explain how they were interpreting items to ensure they were thinking of the item in a way which aligned with the associated construct. Participants were invited to make recommendations for wording clarification, point out redundancy in items, and recommend new items. Notes were taken for each item discussed and consolidated across interviews for researcher review and item revision. Feedback was also gathered on the response scale options. Following the interviews, a revised set of 62 items, assessing 14 constructs, was created.

FTX Observations and Interviews

Three researchers observed the fourth block of instruction, which lasted for two weeks. This block of instruction was selected because it provided the greatest opportunity to observe teamwork. The purpose of the observations was to identify specific training tasks in which teamwork could be observed, test out the 62 revised observer-based team assessment items, and gain additional feedback on the measures from instructors. Throughout the two weeks, the researchers rotated among teams for observation. Each of the four Military Advisor Teams (MAT) had two instructors assigned to them (one primary, one alternate) and the Battalion Advisor Team (BAT) had four instructors assigned to them. Two instructors opted not to participate in the research. The research team interacted with the remaining 10 instructors while they were observing the teams and conducted interviews and feedback gathering sessions during downtime.

During the observations, researchers referenced a printed version of the team assessment items as an instructor would. They noted whether the items could be observed during specific team tasks happening within the training environment. These observations were captured in a spreadsheet. Researchers also observed whether there was variability in performance across teams, although they did not assign ratings. Finally, researchers discussed the items with instructors to gather feedback on wording, understandability, observability, and importance.

[1] Block 3 was determined to be largely individual-focused and so was not included in this round of interviews.

Results

Based on the interviews and observations, a final set of 24 observer-based items, assessing 11 team constructs, was selected (Table 2). Throughout the interviews and FTX observations, the 10 team process constructs developed by Marks et al. (2001) proved to be distinguishable and important within the context of the training. Therefore, all 10 constructs were selected for inclusion. The initial selection of specific items was based on researcher assessments regarding how observable the item was. The items that were observable in all or most tasks were included in the first cut. The researchers then considered instructor feedback regarding understandability and importance as well as coverage of the various aspects of the constructs. Twenty-two of the 24 items assessed the 10 team process constructs, with a minimum of two items representing each construct. Nineteen of the 22 team process items originated from the Mathieu et al. (2020) 50-item measure of team processes. The self-report items selected from Mathieu et al. (2020) were generally deemed face valid and observable by instructors, although some rewording was necessary for interpretation within the context of the training. For example, the researchers observed there were distinct times of the day devoted to planning. Thus, "when planning" was added to the beginning of planning process items (Table 2, items 1-6). Three of the 22 team process items originated from discussions with the instructors (Table 2, items 6, 13, and 16). Item 6 was important because the teams only had a limited amount of time with their translators and to interact with the role players. The inclusion of item 13 was important because instructors noted much of the work was completed by a few motivated individuals. Item 16 was included because the members of the teams are different ranks and operate outside of traditional chains of command. Furthermore, because they have different areas of expertise, certain situations may call for an individual not in a formal leadership position to step up and lead.

Team cohesion was the eleventh construct selected for assessment. To start, the research team selected 10 items assessing three dimensions of cohesion: group pride, task cohesion, and social cohesion (Carless & De Paola, 2000; Estrada et al., 2016; Seibold & Kelly, 1988). Instructors indicated social cohesion was not as important as task cohesion and group pride. This was largely due to the context of the training at the MATA. Instructors noted social cohesion was likely critical to deployed SFABs who were living together day in and day out and socially interdependent but not as critical to the teams created as part of the training course. However, it was important they had a shared commitment to the goal of learning throughout the MATA course and were engaged in the course activities, which are related to task cohesion. Therefore, one item was selected to represent task cohesion (item 23, *members of this team work together to get the job done*) and another item was selected to represent group pride (item 24, *there is a sense of pride among members of this team*).

The remaining three constructs from the 14 presented during the second round of interviews - efficacy, information exchange, and team initiative - were not selected for assessment. Team efficacy, which is the extent to which teams were confident they could perform well, was not as important in the mind of the instructors, nor was it as observable. The instructors were also concerned teams could be too confident in this setting. Information exchange was an important construct, but those items were generic and overlapped with the team process construct items, which were more specific to the type of information shared or the purpose of the information sharing. For example, items 8 and 11 have some assumptions about information

Table 2

MATA Teamwork Measures

Planning Processes: Mission Analysis

1. When planning, team members identified the key challenges they expected to face.* +
2. When planning, team members developed a shared understanding of the task.

Planning Processes: Goal Specification

3. When planning, the team ensured all members clearly understood their goals.* +
4. When planning, the team set goals for what they wanted to accomplish.

Planning Processes: Strategy Formulation and Planning

5. When planning, the team developed contingency ("if-then") plans to deal with uncertain situations.*
6. When planning, the team allocated enough time for important activities.

Action Processes: Monitoring Progress Toward Goals

7. Team members let each other know when goals had been accomplished.*
8. The team regularly monitored how well they were meeting their goals.

Action Processes: Systems Monitoring

9. The team was aware of their environment and how it impacted their work.* +
10. The team monitored and managed their resources (e.g., medical supplies, translator, equipment, MREs).
11. The team made sure everyone had access to the right information to perform well.

Action Processes: Monitoring and Backup

12. The team balanced the load among team members.*
13. All team members pulled their weight.

Action Processes: Coordination

14. Team members coordinated their actions with each other.* +
15. Team members were able to re-establish coordination when things went wrong.
16. Team members knew when they needed to lead and when they needed to follow.

Interpersonal Processes: Conflict Management

17. The team encouraged a healthy debate and exchange of ideas.*
18. Team members showed respect for one another.

Interpersonal Processes: Motivating and Confidence Building

19. The team stayed motivated, even when things got difficult.*
20. The team encouraged everyone to do well. +

Interpersonal Processes: Affect Management

21. The team maintained a positive work attitude.*
22. The team managed stress well.

Team Cohesion

23. Members of this team work together to get the job done.*
24. There is a sense of pride among members of this team.

Note. The * items represent the 11-item short form. The + represents a similar item to the item selected for the short-form team process scale (Mathieu et al., 2020).

sharing embedded within them. Team initiative referred to whether advisors were taking appropriate action without being directed and whether they understood their priorities and authorities. This was something they were graded on but presented more as an individual than a team construct.

Short Team Measure

At the request of MATA leadership, a short form measure was created, which included a single item for each of the 11 constructs selected. Those items are depicted with an asterisk (*) in Table 2. The items for the short form measure were selected based on the extent to which they were observable across many of the training events and whether instructors clearly understood the items. Mathieu et al. (2020) also published a short form of their team process survey measure in which they recommended a single representative item for each construct. The overlapping short form items from Mathieu et al. (2020) are depicted with a $^{+}$ in Table 2. When a short item from Mathieu et al. (2020) was excluded, it was because the item was likely not observable or was less meaningful in comparison to other items, given the specific nature of the training teams and their tasks.

Although the longer measure would cover more nuance in the constructs, a shorter measure of 11 items would be easier for instructors to use in the CATC course, as the team training events are complex and instructors have many responsibilities. Further, if the MATA intends to roll the specific team construct assessments up to their higher order categories, it will make the single item assessments more palatable as the higher order process measure (e.g., action processes) would be made up of a representative array of items.

Response Scale

The original response scale included a 4-point scale which assessed the quality of the team constructs observed, and a fifth, not applicable option. The number of response options resonated with the instructors. A 4-point scale allows for a quicker assessment than a 5-, 6-, or 7-point scale, which can be helpful to instructors who are trying to make ratings and observations quickly as students are performing. The instructors agreed a longer scale would be more difficult to use. Additionally, a 4-point scale would offer some variability in the original rating but could also be rolled up into a go/no-go assessment if the instructors wished. Finally, including the fifth not applicable option was important. It allowed for instructors to not score an item if they felt they were not able to gather enough information to make an assessment. The instructors also noted it was possible an item could not be observed or assessed. For example, item 19 assumes things got difficult, which might not always be the case.

During the interviews, the instructors did not agree with the initial anchor wording. They were written in a way to assess both the amount of teamwork observed and the degree of improvement needed. As items and instructor ratings were discussed, it was clear the amount of teamwork was difficult to observe within the context of most of the items. However, the instructors did like being able to note the degree to which improvement was needed. They thought it would be meaningful and useful in combination with qualitative notes. Therefore, the response

scale anchors were changed to: 1=needs much improvement; 2=needs improvement; 3=some room for improvement; 4=little to no room for improvement, and N/A=not applicable.

Timing of Team Assessment

The Marks et al. (2001) team process taxonomy asserts that different processes are critical at different phases of task execution. Teams perform in reoccurring transition and action episodes which are directly related to and influence team performance. Team members coordinate during action phases, after planning and goal specification have taken place in the transition phase. The Marks et al. (2001) framework proposed interpersonal processes resonate throughout all team task episodes. Additionally, team states like cohesion can change over time across all phases of team task episodes, although they are likely to be more stable than team processes and change more slowly over time.

Transition processes include mission analysis, goal specification, and strategy formulation and planning. Such processes are relevant to reflecting on past performance and preparing for future action. Interpersonal processes include conflict management, motivating/confidence building, and affect management. It is recommended the MATA utilize the transition process items (Table 2, items 1-6), interpersonal process items (Table 2, items 17-22), and cohesion items (Table 2, items 23 and 34) during planning activities. Within the context of the training course, these team task episodes are referred to as "internal functions." For Block 4, this included morning sync meetings and afternoon after action reviews (AARs).

Action processes include systems monitoring, monitoring progress towards goals, backup behaviors, and team coordination. They are more likely to occur when teams are acting in ways which contribute directly to goal accomplishment. It is recommended the MATA utilize the transition process items (Table 2, items 9-16), interpersonal process items (Table 2, items 17-22), and cohesion items (Table 2, items 23 and 24) during action activities. These are referred to as "external functions" within the context of the CATC. For Block 4, this was when advisors were working with their counterparts. Conceptually this approach aligns with guidance from Marks et al. (2001) as to during which performance episodes various constructs should be assessed. However, it should be noted there may be very little interdependency and interaction between team members during these performance episodes. Only future research will be able to ascertain whether these team assessments will be valid and reliable for these performance episodes.

MATA leadership indicated they preferred to assess the performance of the team at the end of Block 2, and at the end of each week of Block 4 (FTX), across different team task episodes. This would result in an assessment of team processes and cohesion over a longer period of time and across multiple performance episodes. As previously stated, they also expressed a preference for a measure with approximately 10 items. This preference is driven by considerations of instructor load and other assessment requirements.

Discussion

Qualitative evidence was gathered to support the hypothesis that teamwork is critical for SFABs, both for deployed SFABs and the ad hoc advisor teams training at the MATA.

Specifically, team processes and team cohesion were identified as important constructs to develop and understand. In addition, a set of observer-based measures were developed to assess team processes and cohesion within the context of the CATC course. Feedback from the instructors indicates the measures have construct validity and are interpretable by the assessors. Further, they are broad enough to be utilized across many different team events. Finally, to account for instructor workload, both short and long versions of the measure were provided to the MATA.

Future Research

Although this research was successful in meeting the objectives, there is more that could be done. First, one could gather empirical evidence that team processes and cohesion impact student learning and team performance within the CATC. Although interviews with instructors indicated team processes and cohesion were important for team training of task performance and student learning outcomes, this relationship was not established empirically. In fact, the nature of the advisor team tasks is complicated. SFAB team members are interdependent in that they need to come together, share information and resources, and plan their team activities, but then they engage with their foreign counterparts mostly as individuals. Individual advising activities may be more important than coordination between advisory members, particularly in team action phases. Past research indicates task interdependence somewhat moderates the relationship between team processes and team performance (LePine et al., 2008). It could be that the requirement for team action processes during advising activities is low. The same has been shown for cohesion; specifically, the relationship between cohesion and performance is moderated by the interdependency of the task (Gully et al., 2012). Future research should be conducted to better understand teamwork requirements in SFABs. This would allow for improved assessment activities throughout the selection, training, and deployment phases.

Future research could continue to assess the validity and reliability of the measures and associated anchors. This research utilized self-report items from existing measures and revised them for observer assessment. Also, the anchors are somewhat generic and require individual instructors to interpret what level of improvement is required. One activity that would hold value is to assess the convergence and variability among raters (e.g., interrater reliability) of teamwork assessments across instructors. As a best practice, it is good to assess whether multiple observers can be used interchangeably. Another valuable activity would be to explore the recommended timing of team assessments. Currently the MATA intends to utilize the team assessments weekly. There is value in assessing more often over time to see how units are developing. More frequent assessment would offer a finer grain assessment of specific team activities within the context of the training scenario.

It would benefit the MATA to compare the validity and reliability of the short form and long form teamwork measures to ensure both are useful and they are measuring what is intended. Single item measures are generally discouraged in the psychometric literature due to concerns related to reliability and validity in capturing complex constructs (Allen et al., 2022). Their use may dilute the sensitivity of the measure and the ability to detect significant changes over performance episodes. However, some researchers argue that single item measures can provide adequate reliability and validity (Ahmad et al., 2014; Ang & Eisend, 2018). Additional research

should investigate the reliability and validity of the long and short form versions of the measures. Finally, it would be beneficial to assess the degree to which the team measures are capturing team-level phenomena. In discussing the team measurement items, instructors were focused on individual-level performance and had trouble understanding team-level assessments. Understanding how to assess the student teams as a different level of analysis requires a shift in their thinking. It would be valuable to assess the degree to which instructors are able to capture true team-level assessments.

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