Learner Feedback as Collaborative Problem Solving

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ABSTRACT

Leader development requires more than memorizing and regurgitating rote procedures. As a case in point, leaders must often navigate unfamiliar and ill-defined social situations where building and maintaining trust is paramount to success. Honing the relevant attributes and competencies for such challenges is a central aspect of leader development as it would be impossible to develop procedures for an infinitely varied breadth of socially-dependent situations that impact trust. In the current research, we developed an approach to learner feedback to support the development of social interaction skills that support trust building in the context of the activities of military advisors. The novel feedback methods were based on established patterns of instructor-student interaction designed to uncover understanding, combined with methods drawn from the Social Autopsy process originally created for children with learning differences such as Autism Spectrum Disorder who may struggle with social interaction. Building on this foundation, we present a method for developing interaction skills via a modified, Advisor-centric Social Autopsy process, conceived as socially mediated problem solving. The method builds on an identification of common sources of difficulty for military advisors during deployment and provides guidance for learner feedback via discussion that progresses from what happened, to why, to implications, to strategies for the future. We review development of the process as well as supporting evidence from a formative evaluation conducted with instructors at a facility for training military advisors. The outcome of this work is a set of findings to guide further refinement of the approach that can also be applied to leader development with respect to a broad set of social interaction skills that might similarly benefit from instructor-student collaboration to promote understanding and transfer to the operational environment.

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INTRODUCTION

Whether in garrison or deployed, with fellow Soldiers, foreign counterparts, or local nationals, leaders must often navigate complex social situations. Accordingly, the Army Leader Requirements Model (LRM) places a heavy emphasis on social interaction, with attributes and competencies ranging from *Communicates* to *Interpersonal Tact*, along with *Empathy* and Army Values such as *Respect* (U.S. Department of the Army, 2019). Combined, these items highlight subtleties of social interaction for the purpose of understanding alternative perspectives and influencing in a manner that recognizes the inherent dignity of others. Perhaps nowhere are these socially oriented attributes and competencies more important than for members of Security Force Assistance Brigades (SFABs) who assess, advise, support, and liaise with Foreign Security Forces (FSF; U.S. Department of the Army, 2020). Advisors in SFABs are challenged to succeed by interacting with FSF and the local population during deployment in a manner that builds trust and rapport while fostering capability development. Mutual trust between advisors and their foreign counterparts is essential to success (U.S. Department of the Army, 2020).

A central challenge is therefore how to deliberately develop these critical attributes and competencies in advisors. Building trust and rapport depends on effectively navigating social situations, which are often ill-defined, with unclear solution paths and goals that may be further exacerbated by cross-cultural differences. This implies that training on simple rules or procedures is unlikely to be sufficient (i.e., when in situation X, do Y to build trust). Instead, effective social interaction in the advisor context will likely depend on continuous, active problem solving followed by sound reflection. For this reason, we introduce an approach to learner feedback that is an Advisor-centric Social Autopsy process, conceived as collaborative problem solving between instructors and students. The process enables instructor understanding of what learners know while at the same time helping to facilitate learner growth. The approach models the real-life guided reflection that will be essential for advisors when they are deployed and working with their counterparts. Consequently, the process has value for continual growth of students, instructors, and deployed advisors alike. In this paper, we address this need for an enhanced focus on effective social interaction skills that rest on core competencies (e.g., *Interpersonal Tact, Empathy*) that are essential to building trust and rapport. We present a process for learner feedback as conceived for application to a military training course for advisors. Evidence is presented from an initial formative evaluation along with recommendations for next steps, instructor training, and additional application to leaders in varied domains.

Learner Feedback and Social Interaction

Previous work explored various assessment and instructional techniques for addressing social interaction skills in military settings including those based on simulations, social games, and the deliberate use of social modeling (e.g., Ferguson & Diller, 2015; Flanagan et al., 2015; Hubal et al., 2015). In this paper, we focus on learner feedback as a general aspect of effective instructional systems. Indeed, formative assessment is an important element of instructional systems design (National Research Council, 2000). Setting learning conditions to uncover student understanding and defining measures of performance are essential elements but given the purpose of formative assessment is to support

growth, a challenge is how to employ these elements to provide learner feedback. Learning can be enhanced through feedback that is: detailed and narrative, not only evaluative; supportive and aligned with a learner's progress; delivered when a student can benefit; and delivered to a learner who is receptive and able to respond (National Academies of Sciences, Engineering, and Medicine, 2018). Here, we conceive of learner feedback as a process of reflection to enhance the growth of social interaction skills that support trust-building, and as such, the approach has potential utility in varied learning settings whether they are simulated, game-based, or live provided they enable collaborative reflection. More generally, because social errors are likely to occur in almost any setting, the process has the potential to harness the myriad of authentic social interactions that occur in daily life as a vehicle for learning.

A key insight is to think of feedback as not only the provision of the right answer, process, or steps, but also as a dialog between the student and instructor that facilitates deeper understanding. Along these lines, a cornerstone of the Army Experiential Learning Model (ELM) is that instruction should be more about active student engagement and less about lecturing (Army University, n.d.). For instance, one element of the ELM is the Publish and Process stage in which instructors facilitate student discussion by asking questions designed to pull out student observations about an event (publish) and then student reactions (process). To do so effectively, instructors must employ open-ended, thought-provoking questions, which ultimately enable student sharing of observations, concepts, experiences, and opinions. In this manner, the ELM is designed to target not only curriculum content (e.g., technical and tactical skills) but also to implicitly target growth in areas involving the exchange, consideration, and analysis of alternative ideas. While students are eventually told the "right" answer if they do not get there on their own, they are first given the opportunity to share and listen to alternative perspectives as they seek to understand.

The Publish and Process aspect of the ELM resonates with a substantial body of work on how instructors can interact with students, and how students can interact with each other to promote deeper understanding. For example, building on the Piagetian approach to interviews with children, Duckworth (2006) stresses that teachers can help students advance their thinking by asking questions that allow the teacher to understand what the students think while at the same time demanding that the students think about the problem more deeply. Such questions might include: "What do you mean? How did you do that? Why do you say that? How does that fit with what she just said?" (Duckworth, 2006, p. 97). Similarly, focusing on the structuring of peer interactions, as well as teacher modeling of questioning, King (2002) promoted the use of question stems such as: "What would happen if…? What are the strengths and weaknesses of …? What conclusions can you draw about …?" (p. 34). These questions try to systematically move students from observations to deeper connections that require analysis, inference, and/or logical reasoning. By moving beyond surface characteristics to deeper processing, the questions promise to support growth.

While the questioning techniques noted above came out of efforts to instruct students in areas such as science, or in tactical/technical skills in the case of the Army ELM, such techniques are also likely to be applicable to navigating complex social situations. It is therefore useful to build on these methods by considering the Social Autopsy (e.g., Lavoie, 2005). Children with learning differences, including but not limited to Autism Spectrum Disorder (ASD), often face challenges with social interaction (American Psychiatric Association, 2013). The Social Autopsy was created as a method to address these challenges. While the connection between advisors and children with social skill challenges may at first appear remote, it is worth noting that advisors must build trust and rapport through social interactions that occur in what are likely to be new places, with different cultures and customs, and different languages. Such environments might also include threats that further challenge the exercise of social skills under conditions of stress. For the advisor operating under the stresses of such an environment, they are likely to struggle socially in much the same way some individuals on the Autism Spectrum do when they interact with strangers. The causes are very different, and we make no claims regarding similarities in underlying mechanisms. Indeed, we are unaware of direct comparisons at the level of causal processes between these groups. However, for the purpose of this effort, our claim is simply that the overlap in social challenges and potential remedies is likely to be informative for the design of instructional approaches.

Lavoie (2005) argues that the Social Autopsy is a strategy that can be characterized as a supportive dialog focused on social problem solving in which the child is an active participant in a natural setting. He indicates that Social Autopsy is not a punishment, or an attempt assign blame. It is not intended to be controlled exclusively by the adult, but rather it should be a social exchange predicated on conditions of trust. In Lavoie's (2005) formulation the process has five stages: 1) Ask the child to explain what happened; 2) Ask the child to identify the mistake; 3) Assist the child in determining the underlying social error and alternative approaches; 4) Walk the child through a scenario or social story in which they need to generate a response by applying the skill; and 5) Assign social homework that requires the

child to apply the skill. Similarly, online resources for Social Autopsy provide guides that flow from identifying what happened, what mistake was made, and who was hurt to what can be done to correct the situation and in future circumstances, with an emphasis on role playing to practice the desired approach (Autism Classroom, n.d.). Notably, while variants of Social Autopsy strategies are widely referenced, and more generally there are multiple techniques that use narratives to support social skills development (e.g., practicing through the use of social scripts regarding what to say/do, cartooning as way to depict the thoughts of others in social situations), the evidence is mixed and in the case of Social Autopsy is largely anecdotal (Leaf et al., 2019). Nevertheless, these general strategies do provide insights about how social skills might be addressed as part of a dialog centered on problem solving.

Collectively, the emphasis of the Army ELM on instructor as facilitator, combined with established patterns of questioning (Duckworth, 2006; King, 2002), suggest a way to engage advisors to uncover understanding while promoting growth of social interaction skills that can support building of trust and rapport. The Social Autopsy provides guidance on specific frameworks, with an emphasis on constructive dialog, supportive interaction, and timely application in a natural setting. Combined, these elements address characteristics of effective learner feedback such as being detailed, using narrative, being supportive, responding in a timely manner, and building on conditions of trust to enable receptivity (National Academies of Sciences, Engineering, and Medicine, 2018). Feedback is unlikely to be fully effective if it is only evaluative (i.e., noting right or wrong), not aligned with student progress (e.g., over their heads), not delivered prior to the next event that requires the skill, and/or if it is delivered in a demeaning manner.

Advisor-centric Social Autopsy

To construct a method for Advisor-centric Social Autopsy, we began by creating examples of how socially mediated problem solving might unfold in the context of common advisor tasks (assess, advise, support, and liaise) and associated social errors/challenges that impact the building of trust and rapport. These examples were mapped on to the social autopsy process steps noted above, leveraging questions to probe student understanding of what, why, implications, and future actions. For instance, in the context of advising and supporting the FSF, an advisor might seek to make a suggestion or change a process. In so doing, effective execution would depend on listening to others so as to understand how to effect change in a manner that fits with FSF constraints and capabilities while avoiding imposing a decontextualized U.S. Army solution. Hence, in this situation, an advisor error might include not asking about, listening to, or acknowledging others' perspectives, or similarly, making decisions through a strictly U.S. Army centric viewpoint. In either case, these errors threaten to undermine trust and rapport as a vehicle for influence and change.

More specifically, to build the examples, the research team worked with a retired Special Forces operator Subject Matter Expert (SME) to collaboratively develop a complete structure for dialog through a process of Social Autopsy as grounded in tangible situations. Leveraging the errors noted above, Figure 1 shows an example related to not asking about others' perspectives (top panel) and an example related to making decisions through a U.S. Army centric viewpoint (bottom panel). The first error, for instance, might appear in relation to a hypothetical situation in which an advisor fails to solicit input from an FSF counterpart when rehearsing for an upcoming Key Leader Engagement (KLE). In the case of the second error, the challenge might appear if an advisor imposed a solution such as use of a specific Standard Operating Procedure (SOP) that does not fit with FSF operational practices or capabilities. In each case, the SME provided examples of the kinds of questions he might ask if speaking to an advisor who made the error. For the first error, example questions included: "Did you realize that there were other people that could have helped? If yes, why didn't you seek their perspective?" For the second error, example questions included: "Why do the FSF do it that way? What are the strengths and weaknesses of their approach?"

Building on these insights, Figure 1 shows the flow of the general process on the left, with example questions to facilitate dialog on right. In each case, the example questions include strategies for providing additional scaffolding for student advisors who may initially be less aware of the situation or less introspective (e.g., "I've noticed they tend to … Why? What might they have learned?"). In general, such scaffolding can be understood as support provided to help learners given their Zone of Proximal Development (e.g., Vygotsky, 1978). Overall, the advisor-centric autopsy process builds on the practices noted above: a) Moving from observations about what happened to processing/interpreting (e.g., the Army ELM, Army University, n.d.); b) Moving from questions regarding what happened to those focused on implications to ideas about what could be done differently in the future (e.g., Social Autopsy, Lavoie, 2005); and c) Leveraging open-ended questions to require inference and analysis to facilitate growth (e.g., Duckworth, 2006; King, 2002). Following these practices, the central element of the process is to structure

feedback through the use of questions to draw out understanding and push building of further insight (by asking), while allowing for instructor explanation when needed (by telling).

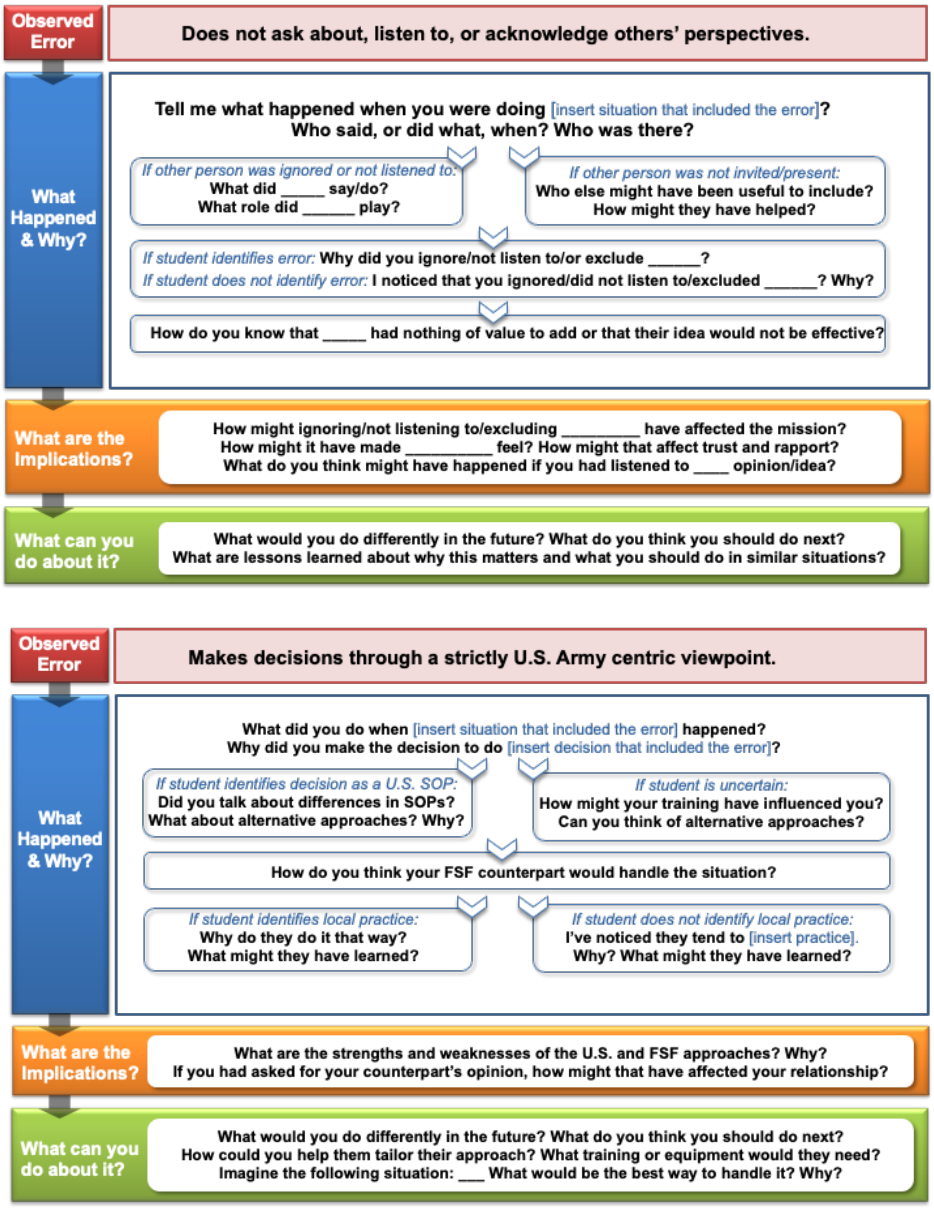

Figure 1. Advisor-centric Social Autopsy Examples

FORMATIVE EVALUATION

To refine the approach, we explored the Advisor-centric Social Autopsy process with instructors at a facility for training military advisors. The instructors received a brief introduction to the approach that included a high-level overview of the intent and method, as well as provision of examples to illustrate the approach (e.g., like those in Figure 1). This abbreviated introduction served as preliminary training to enable trial application, but was limited in that the findings from this application informed more comprehensive training requirements as articulated in the discussion below. Following this introduction, instructors provided reactions via survey and observers watched initial trial application of the approach. Collectively, these data allowed the research team to gain insight into application

challenges to enable refinement prior to full implementation. Our intent was not to evaluate the process per se, but rather to gather initial data to guide later implementation.

Pre-Implementation Surveys

The first source of feedback on the process came from surveys of instructors. The surveys were employed following initial introduction to the method but prior to actually trying the method with students. The intent of this stage of the evaluation was to gather immediate feedback, with a focus on utility and usability concerns that might affect use of the method.

Participants and Procedures

Surveys were administered to instructors shortly after having learned about the Advisor-centric Social Autopsy but before having used it with students. Leaders of instructor teams received an introduction to the approach and in turn introduced the method to their instructors. Thirty-nine participants responded to 22 items about the perceived utility and usability of the method using a 1 (strongly disagree) to 5 (strongly agree) scale. Data from 8 participants were not analyzed due to careless responding (e.g., all 1s or 4s with missed reverse-coded items) or unfamiliarity with the social autopsy method (as indicated in an optional comment, likely due to absence at the introductory sessions).

Results and Discussion

Descriptive statistics based on the survey responses for each item are shown in Table 1, grouped by those associated more with utility versus usability, and within those categories, ordered from highest to lowest mean ratings.

Table 1. Social Autopsy Pre-Implementation Survey Utility and Usability Results.

Survey Item	Mean	*SD*
Utility	**3.48**	**0.99**
1. I understand the purpose behind the social autopsy method.	3.74	1.09
2. The social autopsy method is relevant to the course.	3.71	0.90
3. The social autopsy method would be beneficial for students.	3.65	0.91
4. The social autopsy method would be useful for instructors.	3.61	0.99
5. The social autopsy method would be effective as part of group AARs.	3.45	0.89
6. The social autopsy method is easy to understand.	3.45	1.12
7. The social autopsy method would add value beyond other AAR and counseling approaches currently used.	3.43	1.04
8. It would be easy to tell if the social autopsy method is effective.	3.42	0.72
9. The social autopsy method would be effective as part of individual counseling.	3.35	0.98
10. I would use the social autopsy method in the future.	3.26	1.03
11. I would recommend the social autopsy method to others.	3.13	0.96
Usability	**3.26**	**1.02**
12. I would feel confident using the social autopsy method.	3.45	1.12
13. The social autopsy method would be easy to use.	3.40	1.13
14. I understand how to apply the social autopsy method.	3.39	1.23
15. I would quickly get lost in where I am in the social autopsy process. (r)	3.35	0.95
16. The social autopsy method would be sustainable within the course.	3.35	1.20
17. The social autopsy method is easy to adapt to different situations.	3.26	0.82
18. The social autopsy method aligns with my work style and workflow.	3.26	1.09
19. Even if I lost track of where I am in the social autopsy process, it would be easy to recover.	3.13	0.85
20. The social autopsy method would be very burdensome to use. (r)	3.13	1.06
21. I would need help to be able to use the social autopsy method. (r)	3.13	1.09
22. The social autopsy method is unnecessarily complex. (r)	3.06	0.89

Note. Scale ranged from 1 (strongly disagree) to 5 (strongly agree). (r) indicates reverse scored items where due to item wording, lower was originally better, but data are shown here as higher is better (more favorable ratings). SD; standard deviation. AAR; after action review.

On average across all participants, responses were in the neutral (3) to agree (4) range. While these ratings were in general moderate/neutral, overall, they indicated promising initial reactions toward the process. More specifically, the highest rated items tended to be associated with comprehension, purpose, relevance, and perceived benefit of the method for advisor students and instructors (utility). These ratings may have in part reflected how the process complements the general After Action Review (AAR) procedures already used by the instructors, an issue that we address further below. In contrast, the lower rated items tended to focus more on concerns about ease of use and implementation (usability). Taken together, these responses indicated moderate agreement on utility but more neutral responses concerning usability. While these initial findings were informative, they pointed toward the need to better understand challenges for use/implementation and enhanced training on the approach. In addition, these data suggested that post-implementation surveys (administered following more complete training) should revisit utility and usability feedback to see if these concerns persist.

Observations

The second source of information to guide refinement came from observations of initial application. While the pre-implementation surveys provided feedback based on reactions, the purpose of the observations was to identify areas of opportunity, confusion, obstacles to implementation, and more generally, ways to improve application based on initial use. Once again, the intent was not to evaluate the effectiveness of the approach, but rather, to conduct a formative evaluation to facilitate full refinement and implementation.

Participants and Procedures

Four members of the research team observed initial implementation of the approach during a series of events, each of which were Practical Exercises (PEs) that required students to exercise a broad range of skills. The PEs observed included interactions with government personnel, application of medical skills, coaching of FSF on mission planning, instruction of FSF on simple tactical/technical skills, and interactions with civilians. Role players represented FSF, government, and civilian individuals. Within the context of these events, observers looked at provision of feedback to students, which occurred during short, 5 to 10 minute feedback sessions (hotwashes) immediately after events, as well as more formal 30 to 60 minute After Action Reviews (AARs) at end of the training day/period. In total, across hotwashes and AARs, nine feedback sessions were observed.

Results and Discussion

Overall, observations revealed that instructors were applying several aspects of Advisor-centric Social Autopsy, but application was uneven across both instructors and steps of the process. Accordingly, findings indicated a variety of challenges to be addressed in full application of the approach.

First, recall that a central focus of the approach is to use questioning rather than telling as a method of feedback. Like Duckworth (2006), rather than reliance on instructor telling of right/wrong, the questions are intended to draw out understanding and facilitate growth through reflection. Table 2 shows example question types used by instructors that map on to each stage of the process. For instance, different instructors asked questions such as: “How would you correct ….,” and “How was that received by the FSF?” These stems suggest reliance on questioning while also providing examples that can be used to help guide future instructors into application of the process.

Second, despite use of questioning techniques, it was also apparent that application of the approach was uneven across instructors. For instance, some instructors tended to talk (tell) much more than the students, whereas others were more adept at using questions to facilitate student-to-student discussion. Likewise, some instructors were very adept at using questions to draw out full participation whereas others relied on only a subset of students. For instance, some instructors cold-called quiet students with questions like: “What did you see when …,” and “what do you think about …?” Variance was also observed with respect to linear movement through the process (i.e., moving from top to bottom as shown Figure 1), with some instructors jumping around more than others. In addition, variance was present in use of questioning across process steps. While most instructors were adept at asking questions about what happened (start of process depicted in Figure 1) as well as questions about what can be done in the future (end of process in Figure 1), several relied predominantly on telling with respect to why and implications (middle of process in Figure 1). This pattern is not surprising given typical AAR techniques rely on explicit reviews of event timelines along with identification of sustains and improves. However, the Advisor-centric Social Autopsy process places additional, heavy emphasis on student articulation of why and implications, which are likely to be harder for students to express given dependence on deeper understanding of underlying causes and secondary effects. In the case studied here, many but not all instructors tended to resort to telling of why and implications, inadvertently relieving students from the

requirement to think more deeply. These data suggest that along with general strategies for facilitating discussion, future training for full implementation should focus on use of questions for why and implications.

Table 2. Examples of Questions Asked by Instructors.

Stage of Process	Example Question Stems
What happened and why?	• What happened? How did you approach_____? • Did anyone see anything different? • What was the trigger of the conflict? • How did what happened yesterday affect today? • Before you _____, were you aware of _____?
What are the implications?	• Do you think the FSF understood? • How was that received by the FSF? • Did what happened prepare you to _____? • How do you feel about _____? • Was anyone confused about _____?
What can you do about it?	• How would you correct _____? • What should you do to _____? • How do we build on _____? • Did you have to _____, what were alternatives? • What were sustains? Improves?

Note. Question stems are examples based on questions used across instructors, and thus, do not reflect a complete use of the whole process by a single instructor.

Third, observations revealed that the process would require time and patience, consistent with survey reactions and comments regarding worries over implementation barriers. It is likely that time and patience by both instructors and students will be fundamental to success. Indeed, Duckworth (2006) goes to great length to warn that questioning techniques such as the ones advocated here require time: "Teachers are often, and understandably, impatient for their students to develop clear and adequate ideas. But putting ideas in relation to each other is not a simple job. It is confusing; and that confusion does take time" (p. 81). In the context observed here, as in education more generally, a key challenge is that time allowed for understanding can be dictated by schedules and resources rather than by targeted levels of comprehension. Whenever possible, however, instructors must be patient as understanding emerges.

Finally, and relatedly, observations also revealed variance in student abilities to be introspective and receptive. Instructors generally emphasized a focus on growth rather than a focus on errors and blame, and in fact, some instructors explicitly said this prior to feedback sessions. However, for a process based on questioning, a critical challenge exists with respect to students who will not reflect on their actions and instead dig in on being right or performing well. In response, the process specifies how instructors can use increasingly scaffolded prompts when necessary. For instance, in the top panel of Figure 1, the flow suggests that if the student does not identify the error, the instructor can say: "I noticed that you ignored/did not listen to/excluded …? Why?" This illustrates how the flow can move from asking to a combination of asking and telling. In the end, some element of telling with certain students is evitable, and appropriate, if students do not get there on their own, especially in time-constrained situations. Yet, for the Advisor-centric Social Autopsy process, the objective is to take time to question, and to rely on it as long as possible. More generally, the time required for reflection suggests a need to develop organizational strategies to add extra time as needed (e.g., flexibility moving to the next activity, or talking with a reluctant student offline).

CONCLUSIONS

The Advisor-centric Social Autopsy process rests on the concept that learner feedback can best help students grow when the students are actively engaged as collaborative problem solvers with their instructors. Rather than feedback that provides the right answer or right steps ("You should have done …"), the process asks instead: "What do you think you should have done?" Following Duckworth (2006), the process therefore shifts from telling to asking to uncover what students know while promoting further growth. In this specific instance, the process focuses on social interaction skills for advisors, leveraging elements of Lavoie's (2005) Social Autopsy approach. The approach uses

questioning techniques to put responsibility on the student to help uncover what happened, why it happened, implications, and what can be done in the future. The emphasis on questioning is consistent both with the Army ELM (The Army University, n.d.) and with AAR best practices (U.S. Department of the Army, 2016). In this sense, the process is meant to resonate with established Army methods, while placing additional emphasis on a systematic approach given the advisor need for effective social interactions that rest on core competencies (e.g., *Interpersonal Tact, Empathy*) essential to building trust and rapport. While the process nests within typical AARs, it enhances these practices by challenging learners to actively problem solve based on articulation of why and implications as enabled through a specific, deliberate process for providing support. The process is not intended to replace approaches like simulation or games that target social interaction (e.g., Ferguson & Diller, 2015; Hubal et al., 2015). Instead, the process is conceived as a complement to effectively leverage experience in any setting provided there is an avenue for collaborative reflection.

Findings and Next Steps

In this paper, we presented the theoretical background to the Advisor-centric Social Autopsy process and preliminary evidence from a formative evaluation designed to capture initial instructor feedback and observations to guide full implementation at a facility for training military advisors. In our conclusions we do not focus on overall efficacy as the process awaits more traditional summative, programmatic evaluation. Rather, we argue that our results indicate openness to use of the approach and preliminary perceived utility, while at the same time exposing concerns regarding complexity. Combined with survey responses, our observations indicated: a) General feasibility of the approach in that as a group, instructors successfully executed the process; b) Variance in the use of questions with respect to why and implications (the middle of the process depicted in Figure 1); c) Variance in application with respect to dominant patterns of who is talking and full participation; and d) Challenges with respect to time for use of the whole approach.

Building on these findings, the next step will be to implement full instructor training on the approach, potentially as a module for new instructor preparation on how to provide feedback and execute AARs. Alternatively, or in addition, the module could be used by current instructors to help refine feedback approaches. Final decisions on the exact approach will depend on end-user guidance, but the eventual plan will likely include an overview of the approach, provision of examples (e.g., Figure 1), and PEs to enable practice. In addition, based on the findings reported here, we expect this training to emphasize key lessons learned. First, the training will need to provide examples focused on using questions not only for what happened and what to do next time but also to draw out student thoughts on why and implications. This could be done through examples such as those in Table 2 and Figure 1, with a focus on PEs that practice the middle stages of the process. Second, relatedly, the training will need to stress instructor patience in terms of asking questions, waiting for answers, and prompting students to help each other problem solve prior to instructor telling. This time and patience issue will also require instructors to learn how to balance the time needed for understanding with organizational constraints while also exploring reasonable organizational flexibility for discussion time. Third, the training will need to cover strategies for involving all students (e.g., “What do you think about what she just said…”). Fourth, the training will need to cover strategies for effectively dealing with non-reflective and non-receptive students. These strategies might include prompts that move closer and closer to telling (e.g., “I noticed… what do you think.”). More generally, however, this later issue will also necessitate looking at the broader instructional context. Notably, Lavoie (2005) indicated that an environment of trust is essential to enable the process, and variation in student-student as well as student-instructor trust may affect willingness to admit and discuss mistakes. Relatedly, additional focus on the creation of and perception of a growth-oriented instructional environment may also facilitate the process. Well-established practices exist for facilitating growth-oriented instructional climates including elements such as: articulation of how success is defined, instructor focus on improving, and relatedly, a focus on student errors as being expected and valued as part of the learning process (National Academies of Sciences, Engineering, and Medicine, 2018). This later point on a growth emphasis is crucial, for no feedback approach, simulation, game, or instructional technique exists outside of the culture of the learning community in which it is embedded (National Research Council, 2000).

Once instructor training is implemented and the process is regularly employed, research attention will then turn toward evaluation of the approach in order to explore utility, usability, and effects on social interaction skills. This research will likely include revisiting instructor viewpoints relative to changes from initial reactions (Table 1), as well as obtaining student reactions regarding quality and utility of feedback practices. Evidence of the effectiveness of the approach may also be explored, for instance, by looking for changes in student behaviors following feedback as they progress through the curriculum in which they have many opportunities to both make and not make social interaction

errors. For example, if the error in Figure 1 occurs early in the course, and is addressed, do we see it again in similar circumstances in a later week?

Additional Applications

Although the process reviewed here was developed for use by advisors in a training setting, it is likely that once refined and tested, the process will be applicable to other settings as well, although full application of the approach to other settings awaits testing that builds on the theoretical perspective presented here. First, because the process is agnostic to setting, advisors can use the process when deployed with their teams, provided there is an opportunity for collaborative reflection. Indeed, it is practically inevitable that errors will occur when interacting with different cultures. What matters is engaging in reflection and recovery that lead to the building of trust and rapport. Likewise, given its fit with ELM and AAR processes, the approach will also be useful for advisors when instructing FSF in tactical/technical skills, for while the focus may differ, the process should be similar. In this sense, it is notable that the Advisor-centric Social Autopsy process is likely to transfer in unique ways because it is not simply learning what to say, but rather, learning a process of reflection.

Beyond advisors, the process should likewise have applicability to a broad spectrum of military leaders. As noted in the introduction, the Army goes to length to emphasize attributes and competencies that enable social interaction skills in the LRM such as *Interpersonal Tact* and *Empathy* (U.S. Department of the Army, 2019). Given this focus, errors like those shown in the upper panel of Figure 1 are also likely to be prominent in non-advisor settings, such as when a new Platoon Leader fails to seek out the perspective of a seasoned Platoon Sergeant. Similarly, in the context of undersea warfare, the error might occur when a Junior Officer of the Deck fails to fully seek out or consider the perspective of the Sonar Supervisor. In both cases, Commanders could use the process portrayed here to coach and develop leaders. The approach may also be applicable to leaders in civilian or other governmental settings. Once again, as an example, picking up on missed opportunities for seeking other perspectives (Figure 1), the very same error may exist when a Corporate Executive Officer fails to garner advice from a full range of stakeholders thereby failing to effectively leverage diversity. The key to this generalization is not because there is something magical about the process. Rather, the key realization is that social interaction is hard, building trust is harder, and a variety of errors are to be expected especially when interacting with strangers across varied domains (e.g., as reviewed and popularized by Gladwell, 2019). Because of the complexity of human interaction and because the approach does not rely on simple articulation of context specific rules, the method promises to promote application of social skill strategies that underscore building of trust and rapport across a variety of contexts based on a long tradition of instructor-student interaction as a core component of effective learning environments. Future testing and application will provide evidence with respect to these assertions.

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REFERENCES

American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders* (5th ed.). Arlington, VA: American Psychiatric Association.

Army University (n.d.). *Adult teaching and learning user's guide*. Retrieved November 13, 2020, from https://www.benning.army.mil/CFDP_INST_HW/content/Adult%20Teaching%20and%20Learning%20Users%20Guide%20ver%203.pdf

Autism Classroom (n.d.). *Social autopsies: What are they and why you need them*. Retrieved November 13, 2020, from https://autismclassroomresources.com/social-autopsy/

Duckworth, E. (2006). *The having of wonderful ideas and other essays on teaching and learning*. New York: Teachers College Press.

Ferguson, W., & Diller, D. (2015). *IMMERSE: Interactive mentoring for multimodal experiences in realistic social encounters*. Research Triangle Park, NC: U.S. Army Research Office. (DTIC No. A625663)

Flanagan, S., Horn, Z., Knott, C., Diedrich, F., Halverson, K., Lucia, L., & Weil, S. (2015). Teaching social interaction skills with stealthy training techniques. 6th International Conference on Applied Human Factors and Ergonomics. *Procedia Manufacturing, 3*, 4036 - 4043.

Gladwell, M. (2019). *Talking to strangers*. New York: Little, Brown, & Company.

Hubal, R., van Lent., M., Wender, J., Lande, B., Flanagan, S., & Quinn, S. (2015). *What does it take to train a good stranger*. 6th International Conference on Applied Human Factors and Ergonomics. *Procedia Manufacturing, 3*, 3955 - 3962.

King, A. (2002). Structuring peer interaction to promote high-level cognitive processing. *Theory Into Practice, 41*, 33-39.

Leaf, J.B., Ferguson, J.L., Cihon, J.H., Milne, C.M., Leaf, R., & McEachin, J. (2019). A critical review of social narratives. *Journal of Developmental and Physical Disabilities, 32*. https://doi.org/10.1007/s10882-019-09692-2

Lavoie, R. (2005). *It's so much work to be your friend: Helping the child with learning disabilities find social success*. New York: Touchstone.

National Academies of Sciences, Engineering, and Medicine. (2018). *How people learn II: Learners, contexts, and cultures*. Washington, DC.: The National Academies Press.

National Research Council (2000). *How people learn: Brain, mind, experience, and school: Expanded edition*. Washington, DC: National Academy Press.

U.S. Department of the Army. (2016). *Train to win in a complex world* (FM 7-0). Washington, DC: Author.

U.S. Department of the Army. (2019). *Army leadership and the profession* (ADP 6-22). Washington, DC: Author.

U.S. Department of the Army, (2020). *Security force assistance brigade* (ATP 3-96.1). Washington, DC: Author.

Vygotsky, L.S. (1978). *Mind in society: The development of higher psychological processes*. Cambridge, MA: Harvard University Press.

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