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Examining the Effectiveness of the After Action Review for Online and Face-to-Face Discussion Groups

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Examining the Effectiveness of the After Action Review for Online and Face-to-Face
Discussion Groups

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Abstract

There is not enough research in the utilization of the After Action Review (AAR), in a college setting. The purpose of this study was to determine the effectiveness of the AAR in both face-to-face and online classroom environments. Over the period of a semester, participants of undergraduate psychology courses, at a mid-sized university, conducted AARs with their static groups. Overall course and group activity grades were measured, along with self-efficacy, satisfaction, and motivation ratings. The AAR was found to be overall ineffective at improving performance outcomes. The evidence is not conclusive enough to suggest that the AAR will not be a useful learning tool in a college environment. More research is needed to determine how best to implement the structured debrief.

Keywords: After-Action Review, structured debrief, face-to-face, online discussion, groups

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The role of feedback, in learning groups, is to provide the information necessary for individuals or teams to improve outcomes and processes. The most basic form of feedback is the evaluative kind (Salas, Goodwin, & Burke, 2009), which provides teams of with the knowledge of results (KR). That is, the feedback provider lets the participants know what happened (e.g. "The team scored an 85% on the task"). However, researchers (Atkins, Wood, & Rutgers, 2002) have found that this kind of feedback does not provide enough information for the learners to adjust their behaviors. Descriptive feedback is more helpful in providing examples of how to improve in aspects of the task that lead to more effective outcomes. This type of feedback includes what you need to do in order to improve (e.g. "your presentation is good, but you should work on maintaining eye contact"). These kind of feedback interventions are more effective than the less detailed evaluative feedback, but may only be short-term in improving performance (Salas, Goodwin, & Burke, 2009); thus, the introduction of group reflection. In group reflection activities, members are asked to reflect on the completion of the task and specific dimensions of teamwork (e.g. communication); the purpose being to provide insight into team processes and performance (Salas, Goodwin, & Burke, 2009).

The After Action Review fits right into the reflective learning technique. An After Action Review (AAR) is a systematic review of a group's performance after a recently completed task or event (Ellis & Davidi, 2005). In other words, it is a debrief that allow team members to discover for themselves: what happened, what to keep or fix, and how to improve for the next time (U.S. Army, 1993); essentially, the group members collaborate with one another on how to improve, based on experiences. Currently the After Action Review is used primarily by military, aeronautical and medical fields

(Tannenbaum & Cerasoli, 2013). These industries also make up the most research on the After Action Review as a training tool; however, educational, organizational, and training fields are taking notice. As a topic of research, the AAR does not have a large (in comparison to other team effectiveness research) pool of studies.

In Mathieu, Maynard, Rapp & Gilson's (2008) review on team effectiveness, the IPO (Input-Process-Output) framework is considered the beginning point for research on team effectiveness (McGrath, 1964). Within this theoretical framework, the After Action Review is an input that leads to effective team outcomes. The antecedent variables that comprise a team are considered the inputs that include organizational (environment and training), team (team level competencies, leadership and team structure, training), and individual factors (individual competencies, personality, and motivation). These antecedents are then moderated or mediated by a variety of processes (interactions between group members) that lead to subsequent group or team outcomes (e.g. performance and group or task satisfaction).

Students performing a group activity in the various classrooms bring with them certain inputs. For the present study, the AAR will serve as an input, or training method, that aids in communication within teams. Stevens and Campion (1994) describe team competencies as a process in the IPO model. These researchers suggest that communication is an important team competency and related to team performance (Stevens and Campion, 1994). Using the IPO framework, the After Action Review serves as a tool for students to improve their group communication processes that lead to more effective group outcomes.

Another process in the IPO model is the learning environment itself. The learning groups that are the focal point of this study are online (WBI – Web Based Instruction) and traditional classroom instruction (CI – Classroom Instruction). Although some studies use college students in their research, the primary methodology (in AAR research) uses business or war simulations as the specific event to improve. First, it is appropriate to discuss the differences in the literature regarding WBI and CI based teaching. In a large meta-analysis (Sitzmann, Kraiger, Stewart, & Wisher, 2006), CI and WBI were examined for differences in learning effectiveness. They found that WBI is 6% more effective than CI regarding declarative knowledge. They failed to account for individual differences in students and instructional design, however. Orvis & Lassiter (2007) collaborated together to review the literature on CI vs. WBI methods and examine more closely why WBI is more effective. What they found is that when comparing only those with the same method for teaching, WBI and CI were not significantly different. However, when learner-control and inter-activity between learners is high they saw that WBI came out ahead. Communication overall may be a concern for groups in their respective learning environments, but WB communication may have additional problems. WB groups have to adapt to communicating with the technologies available (e.g. chat features, message boards, video). Not having the ability to communicate synchronously with group members may be a potential pitfall for many WB learners. Thus, those in a traditional face-to-face classroom environment may have an advantage over those in learning online.

In summary, the present model predicts that the AAR is a mechanism that directly improves students' group processes, specifically the communication processes in the WB

or CI learning environment, as manipulated by the AAR. Enhancing the group processes, via AAR, will lead to greater group-efficacy, higher motivation to perform group tasks, higher satisfaction, and increased performance. Refer to Figure I for the proposed model

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          ┌─────────────────────────┐
          │   Learning Environment  │
          │        WB & CI          │
          └─────────────────────────┘
                       │
                       │
┌────────────────────┐ │  ┌──────────────────────────┐
│      Inputs        │ ▼  │        Outcomes          │
│ After Action Review│───▶│  Efficacy, Satisfaction, │
│                    │    │    Motivation, Grades    │
└────────────────────┘    └──────────────────────────┘
```
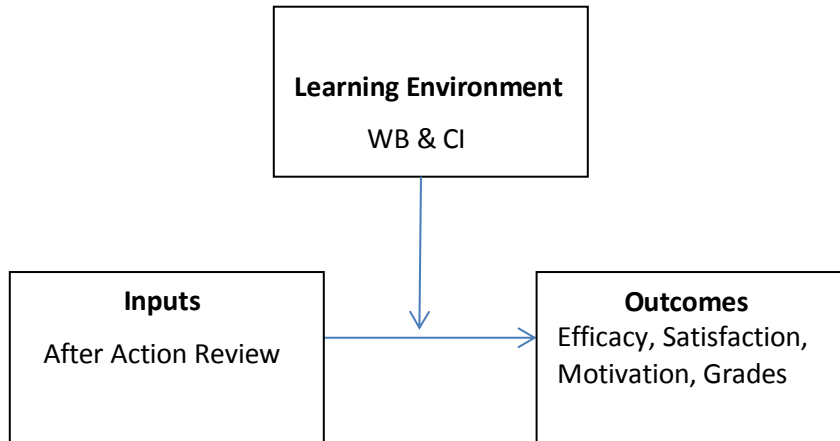
Figure I. Present study

An Input: What is the nomenclature of an After Action Review?

In order to differentiate the AAR from other types of debrief sessions, Tannenbaum and Cerasoli (2012), in their meta-analysis of the AAR literature, identified four essential elements of a debrief. These elements are considered necessary in order for the debrief to be considered an AAR.

The first element is the active learning component. This is an important aspect of the AAR because of the effectiveness of active learning in a training or classroom environment. The opposite of active learning is passive learning, or the traditional lecture based approach (Kozlowski & Salas, 2012). The AAR utilizes active learning whereby participants explore different strategies and approaches towards a specific problem or performance; this is considered an inductive process (Mayer, 2004). Furthermore, the active learning approach and the AAR also improve individual and shared mental models

of a task (Ellis & Davidi, 2005). The researchers found that mental models were improved, even when the task was completed successfully, with the AAR and active learning on the part of the participants. The AAR's structure allows the instructor, in a learning environment, to target specific areas of development for the students to reflect on.

The second element is the intended use of the After Action Review. An AAR should be used for developmental purposes only. When the focus is purely on the development of the individual or teams, the AAR may be more effective. Ratings may not be as accurate and feedback may be less accepted (Jawahar & Williams, 1997); all of which detracts from the purpose of the AAR to begin with. Student learners may be less willing to be candid during the After Action Review if they think that grades may be effected by the outcome of the debrief session. Presently, education literature has not addressed issues such as this.

The third element is the specificity of the AAR topic. This debrief method needs to focus on a particular task or group competency in order to be considered an AAR. This leads to a more focused discussion on how to improve a group related task, through the discussion of strategies and the creation of goals (Tannenbaum & Cerasoli, 2012; Locke & Latham, 1990). An instructor may direct groups to discuss a particular element of a task. Without this direction, groups may derail and not fully benefit from the debrief. The lack of direction and instruction may also lead to more dominating group members to take up the majority of the discussion (DeRue, Nahrgang, Hollenbeck, & Workman, 2012). This segues to the final element of the AAR debrief.

The fourth and final element is the use of multiple sources of information. In other words, the AAR should involve everyone that participated in the group activity, regardless of rank in the hierarchy or experience. This may increase feedback accuracy and credibility when everyone is involved, as well as strengthening the active learning process and creation of shared mental models (Ellis & Davidi, 2005). In a classroom environment, this would include all of the students who participated in the group. With the AAR's roundtable discussion, everyone including the more introverted students are given a chance to speak up. Compared to direct feedback from the instructor, this reflective process gives the opportunity for the students to use the collective information needed for improvement. In this way, the AAR is a simple tool for instructors that want to use collaborative learning. See Table 1 for a summarizing of the four elements that an AAR should consist of.

Table 1

Elements of an AAR

Element	Description	Excludes
Active learning	Individuals are involved in the entire process, which includes self-reflection and planning. Team members experiment with different ideas to improve performance; this active engagement reinforces a cycle of learning.	Passive feedback where individuals are told how to improve.
Developmental	Focused on development, which creates a supportive learning environment. This environment also results in accurate feedback from the team members.	Administrative is not appropriate as it does not yield as accurate information.

Table 1 (continued)

Elements of an AAR

Element	Description	Excludes
Specific	Reflection on specific events/actions, such as a training or work event.	Not intended for overall strengths/weaknesses.
Multiple info sources	Input from *all* team members (leader, and all ranks/levels of experience) in order to get a well-rounded view from all perspectives on the event.	Personal/diary self-reflection (individual only).

Note. Adapted from Tannenbaum and Cerasoli (2012)

A closer look at the AAR phases

The first phases of the AAR are the review of the objectives, and outcomes. These phases bring attention to the specific processes that led to the outcome(s) and give the group members the information needed to create strategies or goals (Villado, 2009). This allows individuals to critically reflect on the prior performance, and then provide feedback or information sharing to the entire team. The last phases of the AAR include effective/ineffective actions and the development of a strategy for improvement. These phases are congruent with goal setting theory (Locke & Latham, 1990). By pinpointing the strengths and weaknesses, these phases give teams the data that are needed to create challenging and committed goals. Commitment is the degree of attachment towards a goal, and when others hold an individual accountable, commitment may increase (Locke & Latham, 2002). Further, challenging goals lead to greater stimulation and more strategy development; the last phase of the AAR. Lastly, as stated earlier, one of the elements of the AAR is that it is for developmental purposes only. This gives the team a

safe environment to share feedback and "...extract appropriate lessons" (Eddy, Tannenbaum, & Mathieu, 2013). It should be noted that goal acceptance may also be increased by the AAR. Pearson (1987) argues that goal acceptance is more likely when everyone participates in the creation of the goals. Overall, students are given a safe environment to seek targeted goals, via the AAR. For example, suppose a group uses the AAR to find ways to improve their presentation skills. They discover through reflection that one or two of the group members have good ideas, but they never shared them with group members and took up too much airtime. They set a goal to improve communication by finding time to collaborate ideas, before presenting. This should improve their group outcomes because the team process has been enhanced.

How effective is the AAR for learning?

Previous research, with a focus specifically on After Action Review, demonstrates that the AAR is indeed an effective learning tool. Tannenbaum & Cerasoli's (2013) meta-analysis provides evidence, overall, the AAR is an improvement over the control condition (d = .67). That is, compared with groups that do not utilize a structured debrief, the AAR is on average a 25% improvement. These findings were similar across all fields, individual or group, and simulated or real environments. Essentially, overall the AAR tends to be successful at improving performance.

Recent empirical research on the AAR is limited, with Ellis & Davidi (2005) as some of the few doing research. Ellis & Davidi (2005) wanted to look closer at the content of the debrief by comparing success and failure focused AARs. What they found was that learners who focused on both failures and successes improved performance over those that focused on the failures. In addition to performance, they also found that

success and failure focused AARs created stronger shared mental models. This is an example of one of the few studies that focuses on comparing different debrief styles (Eddy, Tannenbaum, & Mathieu, 2013).There is even evidence to suggest that AARs have a significant impact on leadership development. The researchers (DeRue, Nahrgang, Hollenbeck, & Workman, 2012) looked at MBA students' leadership behavior, using a Leader Behavior Description Questionnaire (LBDQ), at time one and time two (a year apart). They found that AAR, along with certain personality attributes, contribute a significant portion of the variance explaining higher ratings on the LBDQ.

Finally, a team of researchers have found evidence to suggest that guided team debriefs, using the same elements as an AAR, are more successful than unguided (Eddy, Tannenbaum, & Mathieu, 2013) debriefs. Unguided debriefs gave teams more freedom to discuss the team tasks and processes. Guided debriefs include possible questions to ask and answer as a team, as well as a specific team process to discuss further. Without guidance, it appears, teams tend to discuss only the tasks with which everyone is familiar with -- and negating the importance of team processes. The present study will used a guided AAR, focusing the teams to discuss an important team competency -- group communication.

Processes and Outcomes

Stevens & Campion (1994) have identified competencies that lead to effective teamwork. One essential component is communication. Stevens and Campion (1994) have linked communication to team performance; that is individuals should possess certain Knowledge, Skills, and Abilities that leads to team effectiveness. Their communication competency was selected because of the general role it may have in any

team, regardless of the environment the group is working in -- in this case, Web Based or Classroom Instruction. This competency gives the After Action Review a specific topic to discuss amongst the groups, as a focus point. A guide, for the students, shows the breakdown of the communication competencies. This includes communication style, listening skills, non-verbal or attentive listening, and informal communication. Even though the communication skills of the participants are not being directly measured, it is an important process (manipulated by the AAR) for the group outcomes.

The group outcomes that are measured are group efficacy, motivation, satisfaction and performance. One of the underlying components of the After Action Review is goal setting. As discussed, properly setting attainable and challenging goals may motivate people to obtain those goals for improvement, thus improving outcomes. The AAR structure and communication processes enable everyone to become involved in the goal setting. Further, motivation to perform in future groups may be the result of higher perceived levels of group efficacy.

Self-efficacy is an individual assessment of whether or not someone can perform a certain task (Daniels & Mitchell, 1995). If an instructor asks a student to complete a complicated math problem, a student with high self-efficacy for math would answer with confidence. Group efficacy is the collective ratings of a group's judgment on their ability to complete the task. In other words, group efficacy is the feelings group members have believing they can successfully overcome the group's task(s) at hand. High group efficacy ratings may actually generate motivation to perform the task, which Daniels & Mitchell (1995) term the transformation from a "can do" construct, to a "will do" (Pinder, 2008). Thus, higher group efficacy ratings may increase motivation to perform in groups.

The After Action Review may enhance group efficacy ratings by improving the group's performance. In the learning environment, a group may conduct an AAR after a group task and determine areas to improve. I propose that on their next task, the improvements on the communication processes may result in higher performance and higher self-efficacy rating outcomes. Further, the AARs ultimately leading to more effective group outcomes may increase group satisfaction. Satisfaction is a result of the emotional reaction towards a task and beliefs that the task may satisfy (Pinder, 2008). As an example, a student may enjoy the group task when they know that it will fulfil their needs of achievement and interpersonal relations. By enhancing group communication processes, in either learning environment, a student may in turn have higher satisfaction. To sum up the theoretical background, I predict that students' improvement on processes (specifically communication processes in WB and CB environments, as manipulated with AARs) will lead to greater group-efficacy, higher motivation to perform group tasks, and more satisfaction. Lastly, the effectiveness of AARs in increasing overall performance has empirical support, thus this study will also hypothesize that grades student groups will increase as well. These are the hypotheses for the present research study.

Hypotheses

Hypothesis 1: After Action Reviews will increase group efficacy

Hypothesis 2: After Action Reviews will increase performance of group activities

Hypothesis 3: After Action Reviews will increase motivation to perform group tasks

Hypothesis 4: After Action Reviews will increase satisfaction

Hypothesis 5: Learning environment (online vs. face-to-face) will moderate the relationship between group communication, as manipulated by the AAR, and outcomes.

Method

Participants

Students from undergraduate sections of psychology department courses were recruited to participate in this study. The courses include Introduction to Psychology ($n = 111$), Research Methods ($n = 42$), Social Psychology ($n = 39$), and History and Systems of Psychology ($n = 42$). Traditional classroom courses included participants from Social Psychology, Research Methods, and History and Systems of Psychology. Introduction to Psychology was web based instruction. The courses ranged from lower to upper undergraduate levels. Participants were compensated with bonus credit for each of their respective classes. All participants completed group activities, conducted After Action Reviews, and completed various surveys including; group efficacy, motivation, and satisfaction. There was a total of 183 participants in this sample, 54 were male (19.6%) and 129 female.

Materials and Procedure

At the beginning of the semester, each participant was assigned to a group that persisted through the semester. Before starting the group activity, each individual was given a review of the guidelines for what makes good group communication. They also were able to review a short presentation on how to conduct an After Action Review, after completion of tasks. Once the group activity was completed, the members conducted an After Action Review debriefing following the format given to them. Participants', depending on the course, performed lab activities, graded discussions, or projects lasting the length of the semester, with their group. These were either through online

collaboration or with all the members together, if they are in traditional face-to-face classroom environment.

At a midpoint during the semester, participants completed a Group Efficacy survey. This same information on efficacy was collected at the conclusion of the semester along with motivation and satisfaction data. The goal with the multiple time points is to compare differences across the time-series between face-to-face and online groups, as well as the overall effectiveness of the AAR in regards to group efficacy and performance (grades in group activities). The After Action Review format (Appendix C) is the same used by the U.S. Army (1993), which matches the operational definition of an After Action Review given by Tannenbaum & Cerasoli (2012). Participants were given a guide to follow along and document the process, as well as a short online video to refresh participants on the use and benefits of the AAR. The communication in groups competencies (Appendix B) was adopted from Stevens & Campion's list (1994). This was used as a guide and topic for the groups' AARs. Many group members were performing different activities, depending on the course. The communication competency served as a specific focus point for the After Action Review across all classes and participants.

Measures

The participants used Qualtrics software, online, to complete the following measures. The Group Efficacy survey was adapted from Rittman (2004). The survey includes items such as: "I am confident that my group will be able to work together to achieve the group objectives," and "I am confident in my group members' abilities to successfully perform their individual roles (see Appendix A)." Group Satisfaction and motivation are additional items that have been adapted into the Group Efficacy survey

(Appendix A). Reliability analysis results were quite good for Group Efficacy ($\alpha = .93$) and Group Satisfaction ($\alpha = .89$). Participant performance was measured by overall course grades and individual grades for group activities. The grades were on a typical 0 - 100% scale.

Results

As a manipulation check, participants were asked whether or not they performed the AAR for each time series. At the beginning of the semester, 66 claimed to have gone through the AAR (23.9%). At the end of the semester only 57 (20.7%) participants reported completing the AAR.

Individual outcome variables for this study included overall grades, group activity grades, self-efficacy ratings, satisfaction working with groups, and motivation to work in future groups. Not all participants completed each survey, with *n* ranging from 115 to 141. Descriptive statistics for all study variables are in Table 2. Means and standard deviations are in the normal, expected ranges.

Table 2

Outcome descriptive statistics

Variable	*n*	*M*	*SD*
Self-Efficacy Pre	115	4.12	.72
Self-Efficacy Post	143	4.03	.67
Motivation	117	3.79	.83
Satisfaction	117	5.87	.90
Discussion Grades	141	.71	.26
Course Grades	141	.79	.19

Note. Satisfaction scores are 1-7 on a likert scale, while self-efficacy and motivation scores are on a 1-5 likert scale

To test hypothesis 1 through 4, that After Action Reviews should increase self-efficacy, performance, motivation, and satisfaction, basic correlation analyses were used. Results indicated these hypotheses were not supported as the After Action Review was not significantly correlated with any of the performance outcome variables. Refer to Table 3 for the correlation matrix. In other words, conducting an AAR or not did not have any significant influence on group efficacy, motivation, satisfaction, or performance (grades). Thus, none of these four hypotheses were supported. It is worth noting that there was a significant positive correlation between group efficacy at midterm and motivation ($r =$ .41, $p < .001$) and group efficacy at the end of the course with motivation ($r = .51$, $p <$ .001). Further, a significant positive relationship was found between motivation and satisfaction ($r = .57$, $p < .001$). Lastly, a positive relationship between satisfaction scores and overall course grade was found ($r = .43$, $p < . 001$). Hypothesis 5 intended to examine a moderating effect of learning environment on the relationships between AAR and these outcomes. Because significant main effects for AAR was not supported in the previous hypotheses, there was not sufficient evidence to test for the moderations. Given the current study, hypothesis 5 was not supported.

Table 3

Correlation Matrix of Outcome Variables and AAR

	AAR pre	AAR post	GE pre	GE post	Motivation	Satisfaction	Course Grade
AAR pre							
AAR post	**.45***						
Group-Efficacy pre	.04	-.15					
Group-Efficacy post	.14	.02	**.60***				
Motivation	.21	-.10	**.41***	**.51***			
Satisfaction	-.01	-.02	**.50***	**.60***	**.57***		
Course Grade	.02	-.04	-.14	-.04	.18	**.43***	
Discussion Grade	-.02	-.07	.02	-.17	.17	**.44***	**.77***

Note. * Correlation is significant at the .01 level (2-tailed)

Discussion

The purpose of this study was to determine the effectiveness of the After Action Review in a face-to-face classroom and a web based instruction environment, specifically regarding the following performance outcomes: grades, group efficacy, satisfaction with groups, and motivation to work in future groups. This study is one of the very first classroom-based studies of learning environments to incorporate the After Action Review as a structured feedback approach. Unfortunately, the evidence from the present research does not support any hypothesis predicting significant improvement in any of these performance outcomes.

What this study does show is that the After Action Review is not a detriment to performance outcomes, in any education environment. There are no significant relationships in any direction between the AAR and outcomes. Past research (Arthur & Villado, 2013; Eddy, Tannenbaum & Mathieu, 2013; Ellis & Davidi, 2005; Ellis, Mendel & Nir, 2006; Smith-Jentsch, Cannon-Bowers, Tannenbaum & Salas, 2013; Villado, 2008) all come to the conclusion that the After Action Review improves performance on a variety of outcomes, including all outcomes hypothesized in the present study. The After Action Review is currently used, successfully, in military, aeronautical, medical, and business settings (Tannenbaum & Cerasoli, 2013; Arthur & Villado, 2013). Because of the results of past research, the evidence in the here should be taken with caution. There may be a few reasons as to why the AAR did not produce the expected results.

One limitation is the small sample size of students completing the AAR. Range restriction is the biggest issue in creating a weak relationship between outcomes and the After Action Review. So few participants actually completed the AAR at the end of the semester that it would be difficult to find a significant result in the analysis. A second limitation is that this kind of data should probably be analyzed at the group level, particularly given that these participants were working together in learning groups. Because of the small sample size and the nature of analyzing group data, we determined that individual level analyses were appropriate for this undertaking. Finally, a limitation with this research may have been the lack of guidance given to participants to conduct the After Action Review. The AAR was not a required component of a student's coursework. It seems reasonable that one should expect to see significant results in line with the hypotheses of this study, if in future applications of the AAR it was a component of the

course structure. All student groups were given a guide to follow along with, but individuals had to take the initiative and step into leader roles in order to move the AAR along for their groups. Previous research (Tannenbaum & Cerasoli, 2013) has found that guided AARs overall are more effective than unguided debriefs. Along with the possible (if no participant volunteers to lead) lack of guidance, there was no real motivation for participants to actually complete or take the AAR seriously. We know, through training research (e.g., Kozlowski & Salas, 2010), that motivation towards a training intervention is a major contributor to training outcomes. It is quite possible that many of the participants were not motivated to conduct a proper After Action Review, without guidance.

Specificity (Tannenbaum & Cerasoli, 2013) is a major component for what makes a debrief an After Action Review. The specific focus for the participants was the communication competency. Although they were given a guide on what makes for effective communication, it may have too general to use with the AAR. Perhaps participants would have benefited more if the target goal for improvement was given to them by the instructor, with their collaboration. This would give them both the structure and specificity that is needed, as well as the guidance that makes the AAR so effective. Lastly, the study had participants conduct After Action Reviews at the beginning and the end of the semester. Such a span between each AAR may have resulted in having little effect in participants outcomes, as well. There is currently no research in the AAR domain that looks specifically at frequency of AAR and the time lapses between interventions, in relation to outcomes.

Future research, on the AAR in an education setting, is very young and bright. A closer look at the frequency of After Action Reviews and the time between interventions has already been stated and would be valuable to instructors that want to utilize this tool, in their classroom. Most research compares groups that perform an AAR and those that do not, and whether or not they improve from time 1 and time 2. It would be useful for future research to add to our understanding of how often groups should perform an AAR, so that instructors know how to implement the tool effectively. Another potential avenue would be looking at how motivation to conduct AARs impacts the success of debrief interventions. The AAR requires that it be for developmental purposes only, and should not be a part of any type of performance evaluation, such as grades. This creates an extra challenge for instructors that want to include the AAR as part of the curriculum. Lastly, the guided After Action Review is the most effective, but there is no information on how to best implement the AAR process in an online environment, in the education setting. The same could be stated for a traditional classroom as well, due to the instructor not having enough time or resources to properly guide each group through the AAR process.

Even with a lack of findings in the present study, there are several suggestions that can be offered for what instructors can do to implement successful AARs in the classroom. Such as, it is important to provide motivation for students to actually complete the AAR. By simply adding the AAR as a required component of the coursework, this could be accomplished. Further, the debrief would need to be guided for it to be effective. After a group activity or project has been completed, time could be set aside for guiding the groups along the AAR process. In this way, you can ensure that groups do not meander away from any of the steps in the AAR debrief, and benefit from

creating their own strategies for improving their performance. As stated earlier, we are not sure as to how frequent the AAR should be conducted, as well as how much time in between debrief interventions. With further research, it is hoped that there will be more information at the instructor's disposal for how to best implement the AAR as a learning tool.

In conclusion, this study looked at the effectiveness of the After Action Review on specific group performance outcomes. Although the data does not suggest any statistically significant relationship was found, it would be hasty to completely discount the usefulness of the AAR in the education setting. The research in the AAR domain is small and needs much more work to find out how to best utilize this simple, yet effective tool.

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APPENDIX A
Group Satisfaction & Motivation

Instructions: Please indicate your answer by filling in the bubble above your response.

All in all, how satisfied are you with the members in your discussion/project group?

① ② ③ ④ ⑤ ⑥ ⑦

Extremely Dissatisfied | Dissatisfied | Somewhat Dissatisfied | Neutral | Somewhat Satisfied | Satisfied | Extremely Satisfied

All in all, how satisfied are you with your group's performance?

① ② ③ ④ ⑤ ⑥ ⑦

Extremely Dissatisfied | Dissatisfied | Somewhat Dissatisfied | Neutral | Somewhat Satisfied | Satisfied | Extremely Satisfied

How satisfied are you with the progress you made on the tasks?

① ② ③ ④ ⑤ ⑥ ⑦

Extremely Dissatisfied | Dissatisfied | Somewhat Dissatisfied | Neutral | Somewhat Satisfied | Satisfied | Extremely Satisfied

Considering the effort you put into the task, how satisfied are you with your discussion/project group's performance?

① ② ③ ④ ⑤ ⑥ ⑦

Extremely Dissatisfied | Dissatisfied | Somewhat Dissatisfied | Neutral | Somewhat Satisfied | Satisfied | Extremely Satisfied

Because of this group experience, I am motivated to work in project/discussion groups in the future.

① ② ③ ④ ⑤

Strongly disagree | Disagree | Neither Agree nor Disagree | Agree | Strongly Agree

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Appendix B

Communication Competency Guide

You may use this as a reference on what effective group communication looks like in groups or teams. This is also intended as a topic for the After Action Review and how to increase group communication for the next time!

Effective Communication Style in Group Members:

1. Informal, Relaxed, Comfortable.
2. Open towards others contributions, ideas, and feelings.
3. Willing to ask questions and consider issues brought on by others.
4. Issues should center around the ideas or specifics of the problem -- not the person.
5. Everyone should have equal opportunity to speak and contribute to the group.

Effective Listening Skills:

1. A good listener does not judge the person until the message has been fully received.
2. Active listeners are reflecting and summarizing messages.
   a. The goal of active listening is to take in the whole message and understand the other person/group members clearly, before moving on.

Non-Verbal/Attentive Listening Skills:

1. In a Face-to-Face environment, non-verbal communication (nodding, tone of voice, facial expressions, body posture) is very important.
   a. Non-verbal communication lets people know that you are listening and understand what is being said.
2. In an Online environment, confirming with others lets them know that what they have contributed has been acknowledged by the group.
   a. This can be done by simply communicating that you understand what they've said -- try summarizing as a way to ensure full meaning is understood.

Small talk and Informal Communication:

1. It is ok to engage in *some* small talk that has nothing to do with the task at hand.
   a. Don't get carried away, but allowing time for the group to get to know each other may strengthen relationships and understanding of where others are coming from.
   b. Try getting to know each other before charging straight into the group's task.

APPENDIX C

After Action Review Team Member Form

An After–Action Review (AAR) is a systematic review of a group's performance after a recently completed task or event. An AAR allows team members to discover for themselves what happened, why it happened, and how to sustain strengths and improve on weaknesses. This AAR refers specifically to your group's performance during a group activity. When conducting the AAR, pay attention to the steps provided in the guide below.
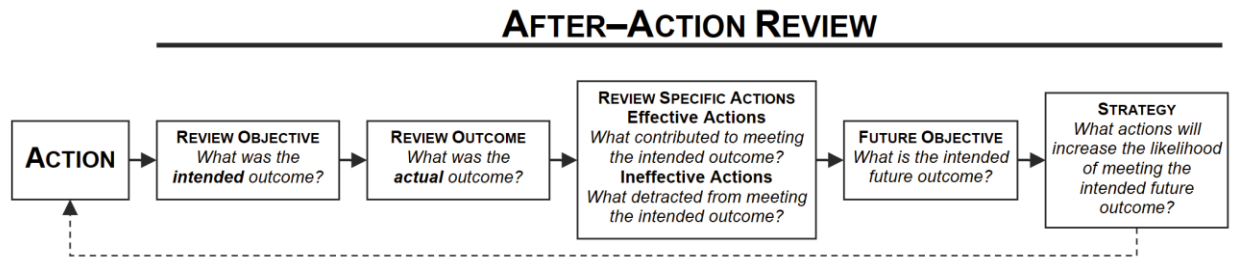
It is important that you follow the guidelines listed below while conducting the AAR so that it remains professional and productive. Specifically, you and your group should strive to:

1. **Avoid assigning blame**

2. **Focus on actions or behaviors, NOT the person**

3. **Avoid generalizations**

4. **Avoid dwelling on issues unrelated to the discussion or the mission**

5. **Participate; everyone should participate when able**

On the following page is a format to guide you along the After Action Review process.

AFTER–ACTION REVIEW FORM

REVIEW OBJECTIVE

What was the intended outcome of the group activity?

REVIEW OUTCOME
What resulted from the group activity from beginning to end?

SUSTAIN/IMPROVE
What went wrong that is in need of improvement -- What went right that should be sustained?

STRATEGY
What actions would you do to ensure that you reach the intended outcome for next time?