Analysis and Feedback

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One of the things that dismays people unfamiliar with Modelling and Simulation or M&S is that we have no perfect solution. Instead, we ask copious questions to get as close as possible to the objectives sought. Analysis supporting ill-defined requirements can be equally disastrous for the same reasons. Like M&S, the raison d'être of analysis is built upon knowing what you want to capture and pre-determining a methodology to gauge whether you are getting it or not. Developing a simulation and exercise collection plan therefore means two things where the training audience is concerned: the simulation plan is unseen but the presence of a collection plan is mildly evident.

The dilemmas with collection plans begin at their initial inception. If physical observation is necessary, then there must be a focus since a prolonged presence interferes with a staff interacting within their habitat. This requires research. Unfortunately when an officer receives a task for this mission, a senior personage or mentor has not even been appointed much less identified. This impacts critical planning and time management assuming that no professional organisation is dedicated for this purpose. Using an American figure of speech, having something 'fall in your lap' means that this is given to you whether you were expecting it or not. Assuming this is you, my recommendation is to look at the following critical areas: identify those receiving the initial taskings; look at the training objectives; look at the doctrine in relation to these objectives.

What proves insightful is to compare what is being attempted with the overall training strategy of the exercising unit. Is this headquarters being asked to do something that it never prepared for? Further, by taking a look at the order from higher and comparing it with the headquarters order, there will be instances where the continuation of actions are not complete nor nuances from the senior command fully embraced. Before the appointment of a senior mentor, it is perfectly acceptable to record any potential discrepancies for future consumption. There is nothing wrong with looking at the time-sequence of certain events during the exercise and creating a draft prioritising the events to be observed. It is also acceptable to stake an early claim over observer space and configuration as well as stating requirements for the set-up of an After Action Review or facility. Ideally this results from a physical reconnaissance of the exercise facilities in advance.

Aside from the physical room requirements of the team, there are budgetary issues that must be addressed. Team members will need to travel to the event and return home but what happens while they are there? If observer controllers are treated as an afterthought, they will have to travel farther if all the good rooms in

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town are taken. In many cases, an observer needs to travel from the headquarters to the exercise facility to look at both sides of a communication or capture a critical event from a screen to accentuate a key point during an AAR. There is also a need to discuss the navigation of trails and roads with the installation so that highly travelled areas such as tank trails are avoided, affording another quicker alternative route between the two points. While these observers are collecting, there must be communications whether it is mobile voice or via network to send briefings and files.

There are many forces at work to compose the observer team while you are taking your initial steps. A Senior Mentor is usually hand picked by the Commanding General or his Deputy. Assuming that you are the Senior Observer Controller, there is a phasing out of future duties so it does not conflict with the training event. Further, there are functional experts that must be equally tasked so that many of the headquarters core competencies can be observed and noted for a more holistic analysis.

So how will you get there? It varies. In some cases, behaviour must be observed or qualitative answering subjectively how well something was done. For others, there are quantitative metrics that implies effectiveness answering how far, how fast or how many. Some events have an elaborate collection scheme where nothing is concealed such as the National Training Center in California's Mojave Desert where observation is conducted both by satellite and physical observation. There is also a functional scheme where rotary flight in an artificial environment is the only thing observed. Some of the training objectives will require a combination of the above – underscoring the need to get started in preparatory analysis from the moment you are tasked.

By the time a senior mentor is appointed, having the physical layout of the facility with observer controller spaces, an overlay with the communications structure, a unit training schedule and exercise order is a good start. Using a 'draft' collection plan, a senior mentor will be hard pressed to alter much of what you've prepared since you have addressed meetings, observation templates and critical observation tasks based on the materials you've obtained. If a senior mentor makes any adjustment at all, it is the technique in which the observations are made. Nonetheless, once the senior mentor has made those adjustments, a collection plan is ready to publish within your team.

Other adjustments will have to be made closer to the event because the plan changes. A General Officer may dictate a unit going right instead of left or incorporate 'innovations' such as the exercising headquarters physically relocating simultaneous to a mission. This means that more than one observation technique must be used, requiring someone to maintain equipment such as video and digital cameras ready at all times.

After Action Reviews or AARs are reinforced when the training audience see themselves in relation to what they were trying to accomplish. This places the focal point of the AAR off of your team and on them. If AARs are interim it occurs between missions and therefore must be respectful of the tight schedule placed on the training audience. An informal AAR giving cursory feedback on how they did is normally sufficient. In all cases, the end of exercise requires a formal AAR. This is because the concentration of all exercise participants is directed on what you have done from beginning to end. Despite the fact that many people are thinking of returning home, there are two categories of attendees that will really care what you have to say: those that are Generals and those that hope to be.

To leave a lasting impression, a Take Home Package or THP takes all written matter, photography, screenshots and statistical tables and indexes the points learned during the training event. Coupled with the AAR videotape, this THP represents a crisp, professional effort befitting years of future study. By keeping a copy of your own product, you will see the stark difference between your efforts and all else that follows.

Analysis & Evaluation

Mr. Daniel Little

Battle Command, Simulation & Experimentation

Directorate (BCSE)

Learning Objectives

Provide training audience with performance feedback.

Develop a simulation/exercise collection plan
Explain the process of collecting exercise events for feedback purposes
Describe the AAR process
Explain the final exercise report process

Putting Your Best Foot Forward When It Falls in Your Lap

EVALUATE:

- TASKINGS
- DOCTRINE
- TRAINING OBJECTIVES
- ORDERS
- MISSION ESSENTIAL TASKS LIST
- TIME-SPATIAL SEQUENCING (RIGHT PLACE, RIGHT TIME)
- CONDUCTING AFTER ACTION REVIEWS

Making the Most of an Eight-Hour Day

PRIORITIES OF WORK:

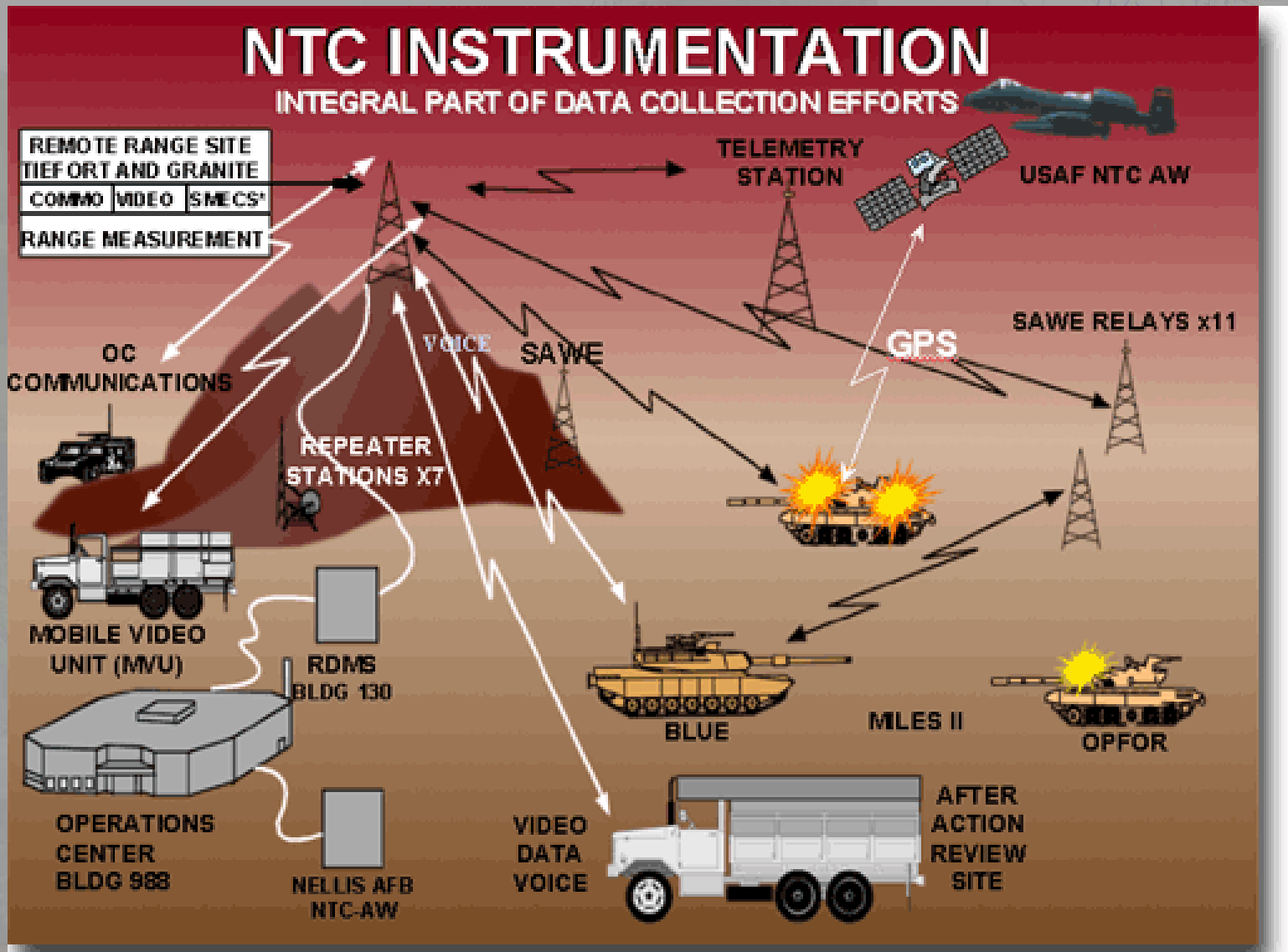
- SENIOR MENTOR (CHIEF OF STAFF/CG)
- SENIOR OC (J3/CHIEF OF STAFF/CG)
- OBSERVER CONTROLLER TEAM (J3)
- FUND CITE (COMPTROLLER)
- SIM CENTER (INSTALLATION)
- VEHICLES/COMMO FOR OFF-ROAD (J3)
- LODGING (INSTALLATION)
- AUTOMATION (J6/INSTALLATION)
- CELL PHONES (J6/INSTALLATION)
- RANGE CONTROL (INSTALLATION)

The AAR Collection Plan

Questions to Ask:

Who will observe the training and who will conduct the AAR?
What trainers should evaluate (training and evaluation outlines - TEOs)?
Who is to attend?
When and where the AAR will occur?
What training aids trainers will use?
Quantitative analysis? (Engagement/Kills, Red-Amber-Green, etc)
Qualitative analysis? (“This is what I observed”)

Elaborate Data Collection



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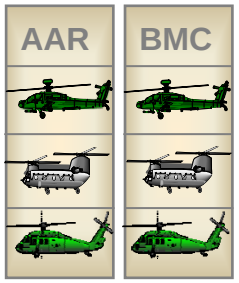
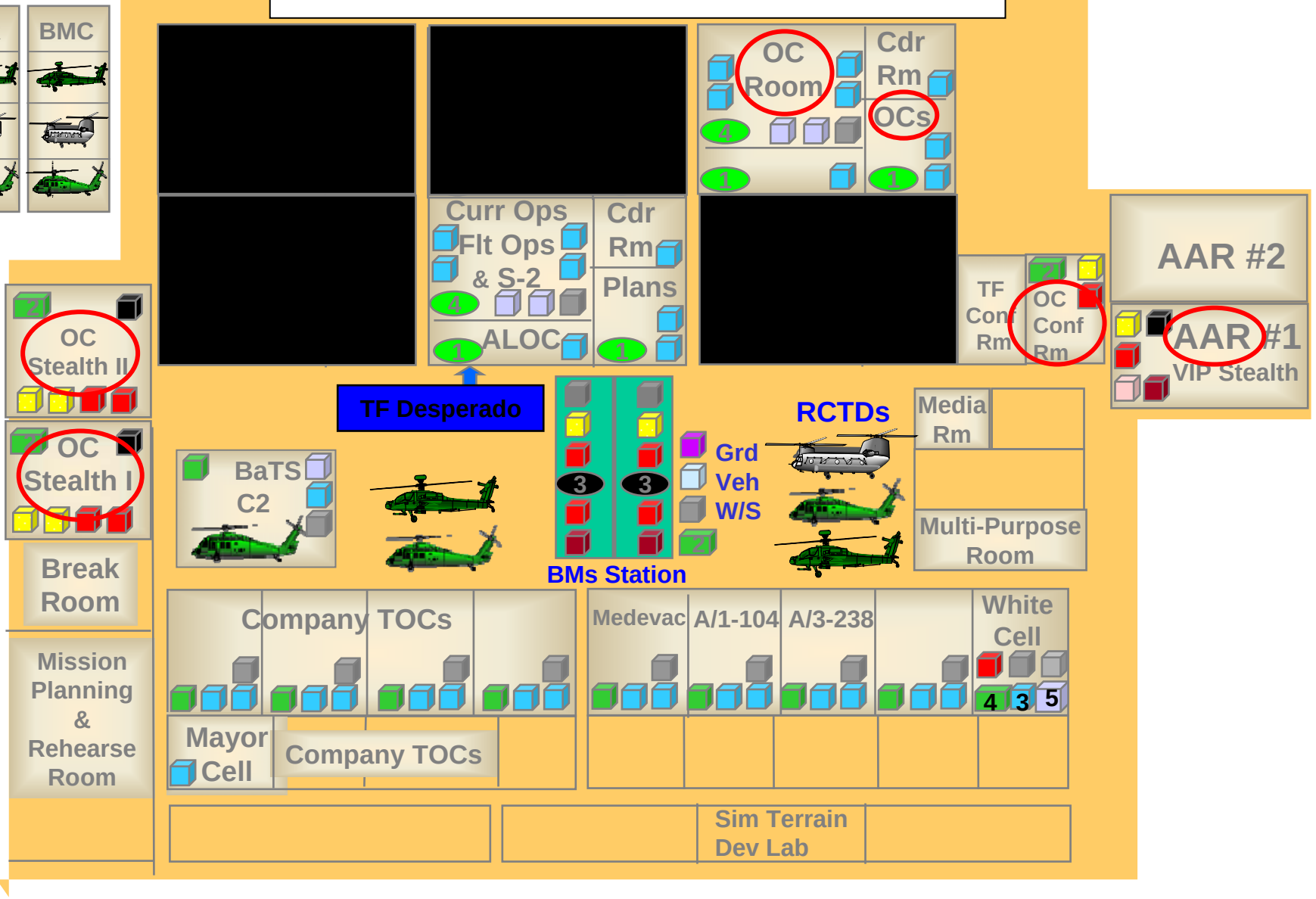
Functional Data Collection





LEGEND:

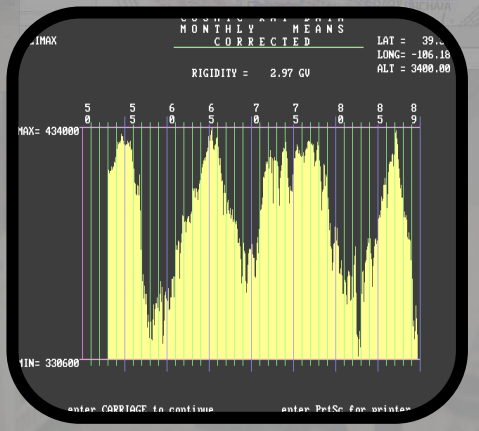
- 2 SINCGARS
- 1 ASTi
- BMC
- 3 ASTi ASIP / HHTs
- Sensor View
- Simulyzer
- SAF / PVD
- STEALTH
- FBCB2
- Grd Veh Workstation
- 2 MCS-Light
- PFPS / AMPS / C2 EMail
- MPDD

Quantitative vs. Qualitative Techniques

What are the major differences between quantitative and qualitative techniques?

Value of the data

Quantitative and qualitative techniques provide a tradeoff between breadth and depth



Generalizing and targeting to specific (sometimes very limited) populations.

Quantitative vs. Qualitative Techniques

What are the major differences between quantitative and qualitative techniques?

Philosophical Distinction

Quantitative researchers no longer believe that their research methods yield absolute and objective truth.

They continue to adhere to the scientific model and seek to develop increasingly sophisticated techniques and statistical tools to improve the measurement of social phenomena.

Qualitative researchers argue that there is no objective social reality, and that all knowledge is "constructed" by observers who are the product of traditions, beliefs, and the social and political environment within which they operate.

Quantitative vs. Qualitative Techniques

What are the major differences between quantitative and qualitative techniques?

Philosophical Distinction

Qualitative approach emphasizes the importance of understanding the context in which events and outcomes occur.

Quantitative researchers seek to control the context by using random assignment and multivariate analyses.

Qualitative researchers believe that the study of deviant cases provides important insights for the interpretation of findings;

Quantitative researchers tend to ignore the small number of deviant and extreme cases.

Quantitative vs. Qualitative Techniques

What are the major differences between quantitative and qualitative techniques?

Scientific Rigor

Quantitative methods believed to yield more objective, accurate information because data collected using standardized methods and can be replicated.

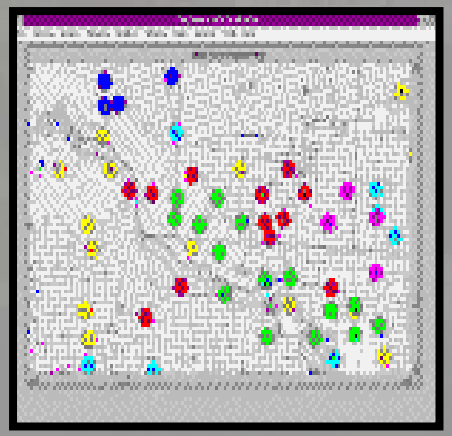
Unlike qualitative data, can be analyzed using sophisticated statistical techniques.

Qualitative methods are most suitable for formative evaluations, whereas summative evaluations require "hard" (quantitative) measures to judge the ultimate value of the project.

Quantitative vs. Qualitative Techniques

What are the major differences between quantitative and qualitative techniques?

Credibility of findings



Time constraints

Staff skills

Costs

Quantitative vs. Qualitative Techniques

Why use a mixed method approach?

When investigating human behavior and attitudes, it is most fruitful to use a variety of data collection methods.

Assumption - most interventions are not introduced into a sterile laboratory, but rather into a complex social environment with features that affect success.

By using different sources and methods at various points in the evaluation process, the evaluation team can build on the strength of each type of data collection and minimize the weaknesses of any single approach.

Multi-method approach to evaluation can increase both the validity and reliability of evaluation data.

Handing Off to the Senior Mentor

- A Map or room schematic for the training
- An overlay with the OC communications systems and meeting places (field)
- A published training schedule
- The collection plan:
  - The 0600/1800 meetings (priorities of the day/significant events)
  - The observation sheets, “three-up, three-down”, Red-Amber-Green
  - The critical tasks matrix

Exercise Sample Schedule

Schedule for Exercise

Nov 23 **Exercise Starts** - Welcome ceremonies
Nov 24 Seminars for military staff procedures
Nov 25 Information management training
Nov 25 COMEX
Nov 26 Mini Ex, as preparations to final execution of the exercise
Nov 27 **Exercise**
Nov 28 **Exercise**
Nov 29 **Exercise** Visitors day # 1
Nov 30 **Exercise** Visitors day # 2
Seminars on MULTIFUNCTIONAL PEACEKEEPING
Dec 01 **SIMEX**
Seminars on MULTIFUNCTIONAL PEACEKEEPING
Dec 02 **SIMEX** ends
Lessons learned Farewell ceremonies
ENDEX

Observational Techniques

Observational techniques

Methods by which an individual or individuals gather firsthand data on processes or behaviors being studied.

They provide evaluators with an opportunity to collect data on a wide range of behaviors, to capture a great variety of interactions, and to openly explore the evaluation topic.

When to use observations

Observations can be useful during both the formative and summative phases of evaluation.

Observational Techniques

Observational techniques - advantages

- Provide direct information about behavior of individuals and groups
- Permit evaluator to enter into and understand situation/context
- Provide good opportunities for identifying unanticipated outcomes
- Exist in natural, unstructured, and flexible setting

Observational techniques - disadvantages

- Expensive and time consuming
- Need well-qualified, highly trained observers; may need to be content experts
- May affect behavior of participants
- Selective perception of observer may distort data
- Investigator has little control over situation
- Behavior or set of behaviors observed may be atypical
- Recording observational data
- Comes to the scene with a set of target concepts, definitions, and criteria for describing events.
- Observations usually are guided by a structured protocol.
- A protocol helps assure that all observers are gathering the pertinent information and applying the same criteria in the evaluation.

The Collection Plan for November 26th

0600:	Shift Change/ Staff Update
	Battle Damage Assessment Brief
0800:	Orders Brief
	National Support Update
1000:	Estimated Air Campaign Completion
	VTC with AFSOUTH
1200:	Visit from PM
	Press Conference
1400:	Fires Coordination Update
	Fly to 1st Div
1600:	Fly to 2d Div
	Return/ Intel Update
1800:	Shift Change/ Staff Update
	Issue FRAGO
2000:	Estimated Beginning Phase III
	Meeting with NGOs
2200:	VTC with AFSOUTH
	Commence OPERATION LUCKY
0001:	Reports to AFSOUTH

0600:	MAJ Martino (Night Shift)
	Observer Huddle (COL DeSilva)
0800:	LTC Mattina/MAJ Pieters attend
	MAJ Padrewski attend
1000:	Begin BDA Analysis
	COL DeSilva attends
1200:	Review staff cell traffic
	Colonel DeSilva Departs to Heliport
1400:	Colonel DeSilva Flies to 1st Div
	Review Fire Coordination/Intel Update
1600:	Colonel DeSilva Returns from 2d Div with CG
1800:	LTC Mattina/MAJ Pieters attends Exercise Control Meeting
2000:	Colonel DeSilva calls OC Cell AFSOUTH
	Observer Huddle
2200:	MAJ Martino - Office Call with Exercise Director
0001:	MAJ Martino reads reports

Documenting the Interactions

Role of the Observer

Observer stands apart from the setting, attempts to be nonintrusive, and assumes the role of a "fly-on-the-wall."

May be beneficial to have two people observing at the same time.

A special issue relates to the amount of observation needed.
There is no hard and fast rule regarding how many samples need to be drawn.

Interviews provide different data from observations. They allow the evaluation team to capture the perspectives of project participants, staff, and others associated with the project.

Structured interviews, in which a carefully worded questionnaire is administered.

In-depth interviews, in which the interviewer does not follow a rigid form.

Documenting the Interactions

Field notes

Date and time of the observation should be recorded, and everything that the observer believes to be worth noting should be included. No information should be trusted to future recall.

Technological tools

Tape recorder

Laptop computer

Camera

Video camera

AAR 101

After-action reviews:

Are conducted during or immediately after each event.
Focus on intended training objectives.
Focus on soldier, leader, and unit performance.
Involve all participants in the discussion.
Use open-ended questions.
Are related to specific standards.
Determine strengths and weaknesses.
Link performance to subsequent training

AAR 101

What’s involved:

Introduction and rules.
Review of training objectives.
Commander's mission and intent (what was supposed to happen).
Opposing force (OPFOR) commander's mission and intent (when appropriate).
Relevant doctrine and tactics, techniques, and procedures (TTPs).
Summary of recent events (what happened).
Discussion of key issues (why it happened and how to improve).
Discussion of optional issues.
Discussion of force protection issues (discussed throughout).
Closing comments (summary).

The Dichotomy of Formal Versus Informal

Formal reviews--
Have external observers and controllers (OCs)
Take more time.
Use complex training aids.
Are scheduled beforehand.
Are conducted where best supported.

Informal reviews--
Conducted by internal chain of command.
Take less time.
Use simple training aids.
Are conducted when needed.
Are held at the training site.

Art and Science of the AAR

Conduct of the Evaluation

Setting
The physical environment within which the project takes place.

Human, social environment
The ways in which all actors (staff, participants, others) interact and behave toward each other.

Conduct of the Evaluation

Project implementation activities
What goes on in the life of the project? What do various actors (staff, participants, others) actually do? How are resources allocated?

Native language of the program
Different organizations and agencies have their own language or jargon to describe the problems they deal with in their work. Capturing the precise language of all participants is a way to record how staff and participants understand their experiences.

Conduct of the Evaluation

Notable nonoccurrence

Determining what is not occurring although the expectation is that it should be occurring as planned by the project team, or noting the absence of some particular activity/factor that is noteworthy and would serve as added information.

Nonverbal communication

Nonverbal cues about what is happening in the project: on the way all participants dress, express opinions, physically space themselves during discussions, and arrange themselves in their physical setting.

Take-Home Packages (THP)

- Recaptures the unit's mission, orders and graphics.
- Recalls critical events and observations.
- Delineates an impartial analysis of the observer or team of observers.
- The 'snapshots' from the model act as a graphic representation of the plan's execution.
- Incorporates statistical analysis (quantitative) or subjective analysis (qualitative)
- Includes the AAR videotape.

Cautions

Too lengthy

Filled with unnecessary, irrelevant, and sometimes inconsistent details.

Fail to provide concrete solutions for their training problems

Learning Objectives

Provide training audience with performance feedback.

Develop a simulation/exercise collection plan
Explain the process of collecting exercise events for feedback purposes
Describe the AAR process
Explain the final exercise report process