1

How to debrief geo-simulation/games:

Some ideas and actions to make your debriefing more effective

David Crookall - crookall.consulting@gmail.com
Université Internationale de la Mer & Université Côte d'Azur, France

Abstract: "Geogames have huge potential to enhance learning, but a crucial aspect often overlooked is the **debriefing** process. Debriefing, a reflective **discussion** during and/or following the game, allows players to **consolidate** their understanding of the concepts explored, **reflect** on their strategies and decisions, and **identify** areas for improvement. This reflective process plays a **pivotal** role in maximizing the learning outcomes of geogames, helping players acquire knowledge and develop critical thinking and problem-solving skills. Additionally, debriefing encourages a **collaborative** learning environment, where players can deepen **relationships** while they **share insights** and build a stronger **understanding** of geoscience concepts.

By incorporating a structured debriefing session into the geogame experience, educators and researchers can significantly **enhance** the learning outcomes. (Shortened and modified version of a paragraph generated by Bard.)

That is the (rather bland) theory, but the practice is not easy, either to design or to facilitate. My poster will present some of the **practical** aspects of debriefing. We can also chat about the intricacies, about any challenges that you have faced or about ideas for debriefing your geogame or geosimulation. We can also debrief a difficult debriefing that you experienced. I will also give you the link to a downloadable 100-page chapter on the topic."

2

"Simulation without including adequate debriefing is ineffective and even unethical" (Willy Kriz, 2008)

"The debriefing is where the 'magic' happens" (Dick Duke, 2011)

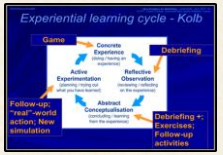
Debriefing can be described as an **episode** during a **simulation** in which participants **reflect** on and **share** their **experience** with fellow participants, with the purpose of **transforming** it into **learning**.

- ✓ **Experience** and **making sense** of it are at the heart of all meaningful learning.
- ✓ **Interaction**, **participation** and **engagement** lead to rich learning experiences.
- ✓ Learning is achieved through creating **communities**, generating **meanings** and developing **understanding**.
- ✓ Participants learn more when they **share control** over and **responsibility** for the learning process than when the responsibility lies solely with the group leader.
- ✓ **Talk**, **discussion** and conversation are the prime means by which humans achieve learning.
- ✓ "**Understanding** is fostered through **discussions** and **collaboration**". (Jerome Bruner)
- ✓ Learning is more effective when it is an **active** rather than a passive process.
- ✓ "It is hard to imagine an effective approach to learning that does not involve the learner in some kind of **experience**." (Phillips, 2014).
- ✓ **Two-way comm**unication produces better learning than one-way communication.
- ✓ "**Talk** is the foundation stone of all learning." (Debra Myhill)
- ✓ Learning is most effective when **thought** and **action** are **integrated**. (Schwartz, 2002)

Etymology

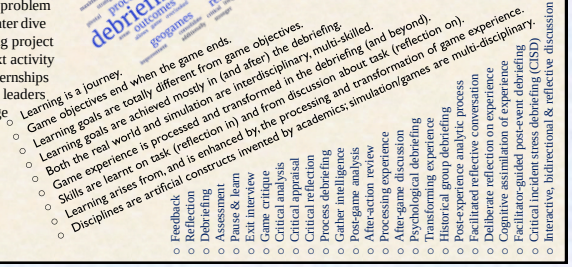
The origins of the word debrief go back a long way. Etymonline offers these origins (edited):

- **Debrief** (v) "obtain information (from someone) at the end of a mission" 1945 (implied in verbal noun de-briefing), from de- + brief (v).
- **De** Latin adverb and preposition of separation in space, meaning "down from, off, away from," and figuratively "concerning, by reason of, according to".
- **Brief** (v) "to give instructions or information to," 1866; originally "to instruct by a brief" (1862), from
- **Brief** (n) early 14c., *bref*, "a writing issued by authority",
  - from Latin *breve*, noun derivative of adjective *brevis* "short, little",
  - which came to mean "letter, summary" and thus came to mean "letter of authority",
  - which yielded the modern, legal sense of "systematic summary of the facts of a case" (1630s).
  - Sense of "a short or concise writing" is from 1560s.



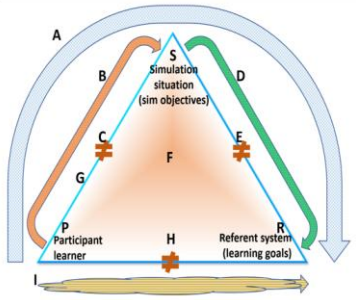
3

- critical incident debriefing (CID), also known as critical incident stress debriefing (CISD), eg, after a traumatic experience (eg, natural disaster, violent incident, traffic accident)
- as part of research, e.g., for clarifying issues, goals, analyses, writing up & publishing results, etc
- gathering information at the end of a project or a field trip or exploration
- at various points during or at the end of a real or simulated intervention
- sharing experiences of people back from separate missions
- following and during (long) visits to different cultures
- providing opportunity to hold people accountable
- at various points in professional training (eg, flying)
- finding clarity and reassurance after a failure
- identifying opportunities for future training
- providing an occasion to reinforce goals
- providing closure or wrapping up tasks
- finding the solution to a problem
- at the end of an underwater dive
- marking a pause in a long project
- making plans for the next activity
- during and following internships
- building and developing leaders
- troubleshooting challenge
- taking stock for a team
- closing down a project
- planning for a project
- building relationships
- rewarding successes
- celebrating a win



4

Rationale. Triangle of relations among participant, simulation and learning goals



A = Long light-blue arrow, simulation-injected S path from participant P to learning goals (referent system) R.

B = Orange path from participant P to the simulation S, usually very different from each other. (This includes briefing and 'getting into' the simulation.

C = Difference between participant P and simulation S

D = Green **debriefing** path D from simulation S to the often different E from the referent system R; this path is essentially accomplished through **debriefing**; the higher the simulation S fidelity E to its R referent, the shorter the distance D.

E = Difference or distance between simulation S and referent system R, or fidelity of simulation S compared to the referent R. The greater the (behavioural, cognitive, affective) distance E, the more debriefing is crucial.

F = Orange cauldron or quagmire pit into which undebriefed participants may fall.

G = Blue triangle, indicating the triangular relations among participant P, simulation S and referent system R.

H = Difference between participant P and referent system R. This may be equated with Vygotsky's zone of proximal development.

I = Brown path from participant P to the different H referent system R.

P = Participant learner (current state of learner's skills, knowledge, etc).

R = Referent system (desired future state of learner's skills, knowledge, etc).

S = Simulation in which the participant P participates, with the intention of getting the participant to arrive at the referent system R.

How to cite: Crookall, D.: How to debrief geo-simulation/games: Some ideas and actions to make your debriefing more effective, EGU General Assembly 2024, Vienna, Austria, 14–19 Apr 2024, EGU24-2605, https://doi.org/10.5194/egusphere-egu24-2605, 2024.

EGU, debrief poster, 18 Apr, 2024

5

Learner-centred debrief and distinction between simulation objectives and learning goals

(Photos taken during a teacher-training workshop that I conducted at Srinakharinwirot University in Thailand.)

Photos 1, 2 & 3. **Simulation objectives** = Make the best tower (based on various criteria).

1. Building the tower
2. Observing the teamwork (used in the debriefing later)
3. Presenting the tower

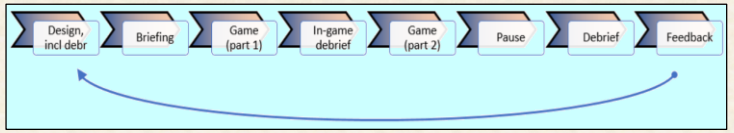
Photos 4 & 5. **Debriefing: Learning goals** = Teamwork and training teachers in debriefing

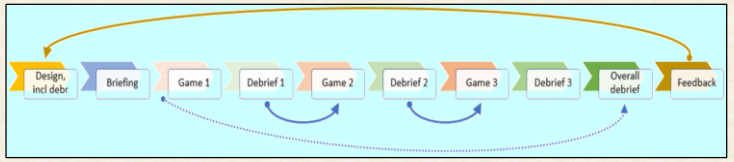
4. Individual debriefing; filling forms; in silence
5. Collective, learner-centred sharing and discussion, based on individual thoughts (recorded in forms) and new ones; augmented by observations made during the simulation (photo 2)

6

Sequencing (game & debrief)

Chapter on debriefing: QR code is for webpage; **pdf** of chapter is large – **2MB**

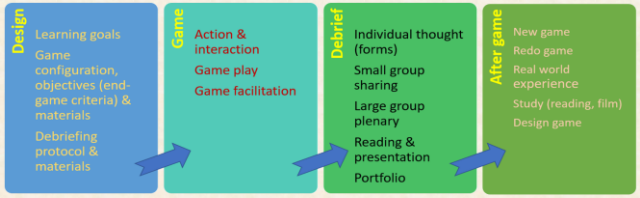




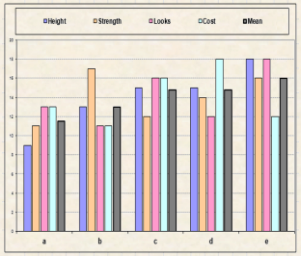
2

7

Game & debriefing structures; game results graph (for debriefing)



Oriot, D., & Alinier, G. (2018). Pocket book for simulation debriefing in healthcare. Springer



8

Individual debriefing form – for FISHBANKS

Individual debriefing form, by David Crookall, for FISHBANKS, by Dennis Meadows

Name_____ Fishing company_____ Role_____ Date_____

Work **alone** & in **silence**. Reminder: You are **no longer in** the simulation. Think b**ack** to your time in the simulation. Your replies below should be words or short phrases (not long sentences).

1. What were / are your **feelings** and **emotions**?
   a. **during** the activity (e.g., excited, sad, frustrated, happy, annoyed, accomplishment, belonging, etc)?
   b. **now**?
2. **What?** Here just **describe**; do **not explain** or interpret. What happened ? Do **not** try to explain or interpret here; be **descriptive**. Consider: Facts, events, interactions, phases. Decision processes. Teamwork in your company. Ship allocation strategies used. Your company's achievements. Evolution of the fish stocks. Ship acquisition (purchase, trade, auction). Account keeping. Negotiation with other companies. Trust levels.
3. How well do you feel your company succeeded in the negotiations? How well do you feel the other companies succeeded?
4. **Why**? **Raisons** & **explanations** for events in N°2, and success / failure in N°3. For example: How did **emotions** influence events? Did **communication** problems influence events? How did **negotiation styles** influence outcomes? What was the role of **greed** (the desire to become rich, the desire to become rich**er than** others - to 'win' at all costs), and non-concern for next generations? What role did **intergroup behaviour** play? What **factors** encouraged success? What factors made things difficult? …/…

How to cite: Crookall, D.: How to debrief geo-simulation/games: Some ideas and actions to make your debriefing more effective, EGU General Assembly 2024, Vienna, Austria, 14–19 Apr 2024, EGU24-2605, https://doi.org/10.5194/egusphere-egu24-2605, 2024.

EGU, debrief poster, 18 Apr, 2024

9

5. **Trust.** How did your trust and feelings of trust evolve during the course of the exercise? What influenced the changes in trust? How did levels of trust influence decisions and interactions? What kinds of vicious circles developed around issues of trust. What did you do to re-establish trust, or indeed to take advantage of a climate of distrust? What about **greed**?

6. **Objectives** - commons. What kinds of objectives did you have? How did they evolve? For example: did you assume that your main objective was to get as many **fish** (and money) as possible for your company? or did you assume that you had to share **common resources** among companies, for a **sustainable future**. What other objectives? Did you attain your objectives? Why / why not? If you did not, who was **responsible**?

7. **Real world.** What analogies can you make with the real world ? What other natural resource commons are being plundered in this way? What kinds of overshoot & collapse are we witnessing today (overshoot = using resources faster than they can regenerate; going beyond the limits of sustainability). (Examples: trees, alcohol, urbanization, debt, water, soil, etc, etc.) What about tomorrow? What are the main dangers in your lifetime?

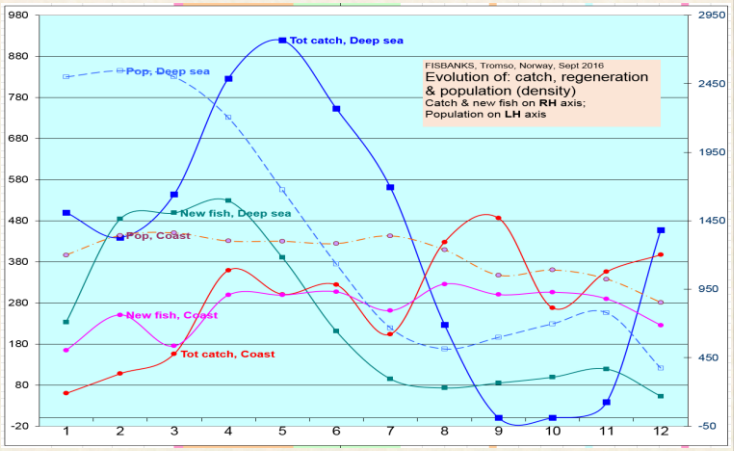
8. **Changes**. If you were to participate again in FISH BANKS, what would you do **differently**? What different **policies** (objectives) would you pursue, and **how** would you achieve your objectives?

9. **Solutions**. What 'solutions' to consider, for fishing and for **food** in general? What kinds of measures should be taken (local, regional, global) to reduce over-exploitation, overshoot and collapse? Role of technology? Partition the seas; quotas; farm fish; eat food lower in the food chain; change consumption preferences; ban meat; ban all pollutants, insecticides, chemicals; use of technology; world government for food; monitor food better; change social values and economic incentives.

10. **Other** thoughts, questions, issues related to sustainability and the future of the planet?

10

Graph from Fishbanks in Tromsø University Fisheries Dept.



3

11

Individual debriefing form for IceWise, Salienseas, Tromso, Norway

IceWise, Salienseas, Tromso, Norway — 1st & 2nd names _____
individual debriefing — Org

You have now left the simulation and moved on from the emotions that you felt.
Work alone & in silence; no talking with neighbours.
For each question, write only a few key words or phrases (as a reminder for discussions later).

- Think back to the simulation and recall your participation a little bit as if as if you had been an observer.
- This form is for you to clarify and record your thoughts.
- In the upcoming discussion, you will not be required to share any more than you wish.

What were your various feelings / emotions during the simulation? Examples: pleasure, sadness, good humour, interest, frustration, curiosity, boredom, anger, calm, untrusting, hope, irrelevance?
How did your emotions evolve over time?

Please do not shy away from expressing your emotions, even if you generally do not do so.

Emotions are part of what makes us human. Emotions influence every aspect of our lives and decision making. Emotions are always there, even if we do not usually express them easily and openly, and even if we are not always aware of them or what type they are. After we put a name on an emotion and share it, we are in a way liberated from the taboo of the emotion, and can then think more clearly about our actions, interactions and decisions.

In the discussion that follows you will of course choose which emotions to share. However, in the space above, please write down as much as you are comfortable with mentioning.

How did your various emotions influence:
- Your motivation to participate?
- Your perception of the (lack of) realism of the simulation?

For more info on the IceWise simulation, click on the QR code, or go here: **https://doi.org/10.1175/WCAS-D-21-0048.1.**

What differences and similarities did you see between the simulation and reality?
Examples: 1 in configuration, 2 in your participation, 3 in feelings.

12

IceWise cont.

What elements in the simulation influenced your sense of **confidence** in the **reliability** of **forecasts**?
Why and **how** did these elements influence your confidence?
Examples: 1 your emotions, 2 the realism of the simulation, 3 the business aspects, 4 the event cards, 5 other participants, 6 the simulation design, 7 decision making, 8 etc.

How would you **change** the simulation? What would you have put **in**, taken **out** of, or **modified** in, the simulation if you had to participate again?

In what ways has the simulation changed your **perception** of the **reliability** of MET.no's forecast product?

Are you more or less **likely** to use MET.no's new forecast product as a result of participating in the simulation? Why?

What thoughts or **ideas** of yours about voyage planning have **changed**, or new ones been **generated**, as a result of participation? What **elements** of the simulation contributed?
Examples of thoughts, ideas & elements may be: 1 simulation design, 2 simulation participation, 3 learning to play in the simulation, 4 objective reliability of forecasts, 5 your confidence in forecast reliability, 6 your confidence in voyage planning, 7 etc.

What **advice** would you give to MET.no for **modification** of the design of their product?

What advice would you offer to the simulation designers and/or the facilitators?

What do you promise yourself to do or **do differently** as a result of participation?

Any other **comments**?

Thank you for your participation !

How to cite: Crookall, D.: How to debrief geo-simulation/games: Some ideas and actions to make your debriefing more effective, EGU General Assembly 2024, Vienna, Austria, 14–19 Apr 2024, EGU24-2605, https://doi.org/10.5194/egusphere-egu24-2605, 2024.