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Interactive Interest-Based Negotiation Training For Managing Conflict in Isolated and Confined Environments

Jennifer A. Fleischer[a]*, Jeff Ayton[b], Maree Riley[c], Kim Binsted[d], Devin R. Cowan[e], Abigail M. Fellows[f], Jeff A. Weiss[g], Jay C. Buckey[h]

[a] *Duke University, 2301 Erwin Road, Durham, North Carolina, USA 27705,* jennifer.fleischer@duke.edu
[b] *Australian Antarctic Division, 203 Channel Highway, Kingston, Tasmania 7050 Australia,* jeff.ayton@aad.gov.au
[c] *Australian Antarctic Division, 203 Channel Highway, Kingston, Tasmania 7050 Australia,* maree.riley@aad.gov.au
[d] *University of Hawaii, Hawaii, USA,* binsted@hawaii.edu
[e] *Space Medicine Innovations Laboratory, Geisel School of Medicine at Dartmouth, One Medical Center Drive, Lebanon, New Hampshire, USA 03756*, devin.r.cowan@dartmouth.edu
[f] *Space Medicine Innovations Laboratory, Geisel School of Medicine at Dartmouth, One Medical Center Drive, Lebanon, New Hampshire, USA 03756*, abigail.m.fellows@dartmouth.edu
[g] *Partners HealthCare, 399 Revolution Drive, Suite 670, Somerville, Massachusetts, USA 02145,* jweiss6@partners.org
[h] *Space Medicine Innovations Laboratory, Geisel School of Medicine at Dartmouth, One Medical Center Drive, Lebanon, New Hampshire, USA 03756*, jay.buckey@dartmouth.edu
* Corresponding Author

Abstract

Even in the best planned space missions, disagreements inevitably arise between parties, and the ability to negotiate effectively while maintaining relationships is critical for successful long-duration operations. Traditional positional bargaining can work for simple low-stakes transactions but does not prioritize ongoing relationships. Interest-based negotiation (IBN), where parties with competing interests and/or goals come together to create a mutually beneficial agreement, is crucial in these situations and is a skill we believe can be learned.

Using a web-based, interactive-media-approach, we scripted, filmed, and programmed an IBN interactive training module. The module begins with a reference conflict between an International Space Station (ISS) crew and ground control about an upcoming Extra-Vehicular Activity (EVA). The reference conflict reveals the interests each party is trying to meet (the crew has lost trust in ground control due to a previous interaction and wants to move things slowly, while ground control is facing pressure from administration and wants to move ahead quickly) and shows a typical positional negotiation that goes badly. The mentor in the program provides instruction in why the negotiation went poorly and how to use IBN. The user then has the opportunity to revisit the negotiation, try different responses, and receive feedback from the mentor along the way. The user learns how to search for the other person's underlying interests.

This module was provided to individuals with a variety of backgrounds for evaluation, including a subset of 9 subjects in isolated and confined environments (ICE) in the Australian Antarctic Program wintering research stations and the HI-SEAS Mars simulation. Feedback was collected (n=33) through both free-response and numerical scaling (0/strongly disagree -> 4/strongly agree). 97% of participants found the activity valuable for learning about conflict management (defined by those who selected either 'somewhat agree' or 'strongly agree'), including 100% of participants in the ICE subset (mode=3). 81% of all participants found the module realistic (mode=4), including 67% of ICE participants (mode=3). Most participants felt this would be valuable to new members of a team in an isolated and confined environment (88% of all participants, mode=4; 78% of ICE subset, mode=3) as well as veterans. This module offers a self-directed, consistent approach to IBN training, which is well received by users. The module could be useful for individuals in isolated and confined environments, as well as for anyone involved in high-stakes negotiation where sustaining relationships is essential. Future work includes further evaluations in Antarctica and with other workgroups.

Keywords: (conflict management, negotiation, isolated environments)

Acronyms/Abbreviations

Best Alternative to a Negotiated Agreement (BATNA), Extra-Vehicular Activity (EVA), Isolated and Confined Environment (ICE), Hawai'i Space Exploration Analog and Simulation (HI-SEAS), Interest Based Negotiation (IBN), International Space Station (ISS)

1. Introduction

Effective teamwork, both within and among parties, is widely recognized as a core component of any successful organization or campaign. This is particularly true in ICEs such as remote Antarctic research bases, submarines, and space missions, where trust and positive interpersonal relations are paramount. Effective teamwork does not mean the absence of disparate opinions or disagreements; rather it is the ability to navigate these situations successfully [1]. Traditional positional bargaining (e.g. like haggling over a price in a market), is the typical approach people take in most situations. While it is well-known and works well for simple low-stakes transactions where ongoing relationships are not a priority, this approach is not optimal in ICEs. Interest-Based Negotiation is a proven conflict management method that includes techniques and tools that serve as the foundation of many of the world's preeminent conflict management groups [2,3]. This approach has been used in high-stakes negotiations where maintaining long-term relations is critical, such as the Israeli-Palestinian negotiation (Camp David Accord), Arias Peace Accords, and South African post-apartheid constitutional reform [4,5,6]. Through this method, interests and/or goals are identified with the aim of working together to reach a mutually beneficial agreement. IBN has been used successfully for decades in multiple high risk and high stress environments, and has been described as highly pragmatic, valuable and effective by government, military and Fortune 500/Global 1000 leaders alike [6,7].

The techniques and tools that make up interest-based negotiation are a set of skills that we believe can be learned [2,3]; this served as the impetus behind the creation of this training module. A web-based interactive-media approach was chosen to facilitate an active learning environment, which is more effective for performance and user satisfaction than traditional classroom or video-learning alone [8]. In this module users are exposed to scenarios, make choices, and then get different feedback based on their selections. The creation of this module demonstrates a novel approach to providing vital conflict management skills. This is of particular relevance to people in ICEs, such as long duration space missions, with the goal of maximizing positive interpersonal relationships to accomplish mission objectives successfully. This includes solving important problems and addressing significant issues with a sensible solution the parties agree to instead of a standoff or a non-sensical compromise.

2. Material and methods

The training module was scripted, filmed, and programmed to provide experiential-training and scenario-based learning, highlighting core concepts of the IBN model for Managing Conflict as summarized in the "The Circle of Value" (Figure 1). The module opens with a reference conflict scenario between an ISS crew and ground control. The scenario centers around an upcoming EVA. The program provides the user with some background on the concerns and interests of both parties so the user can understand the context of the negotiation. These interests, however, may not be apparent to the parties shown in the negotiation. In this opening scenario the negotiation follows a traditional positional bargaining model and goes poorly, with neither side satisfying their objectives. At this point in the module, negotiation expert and program mentor Jeff Weiss introduces the "The Circle of Value." He briefly explains three of the main concepts of the Circle of Value: Interests, Options, and Legitimacy/Standards, and highlights the relevance of each to the opening scenario. He then gives two other real-world examples of the importance of viewing conflict through "The Circle of Value" before bringing the user back to the opening conflict scenario for experiential training.

Fig. 1. "The Circle of Value"
(figure copyright Vantage Partners)

In the next segment of the module users are led step-by-step through the interaction between the ISS crew and ground control using short progressive scenarios. At the end of each scenario, users are asked to choose among three possible responses, each designed to facilitate a teaching point or demonstrate a particular negotiation technique (Figure 2). The choices offer a range of realistic responses including a 'poor' response, an 'acceptable' response, and an 'optimal' response. Every selection prompts different feedback from the program mentor, and users are able to return to the beginning of a scenario (and in some cases based on their choice must go back and choose another option) to explore feedback generated as a reaction to the various options offered. The scenarios start by looking at interests and highlight the

importance of each party first taking the time to uncover the core objectives and concerns of the other party, rather than staking out positions and starting to haggle. The importance of focusing on interests and not positions is emphasized, and the different response choices allow users to explore specific reactions to different language used to elicit these interests. Subsequent scenarios look into developing options together and stress the importance of inventing ideas and continuing to brainstorm together, and not prematurely making a selection. The response choices for these scenarios emphasize that this is a dynamic process and highlight that one can move back and forth between interests and options. The scenarios then cover the importance of defining legitimacy/standards, which are objective criteria used to assess the options and determine which might be optimal. The program teaches a few ways to use these concepts and offers "rules of thumb" for use.

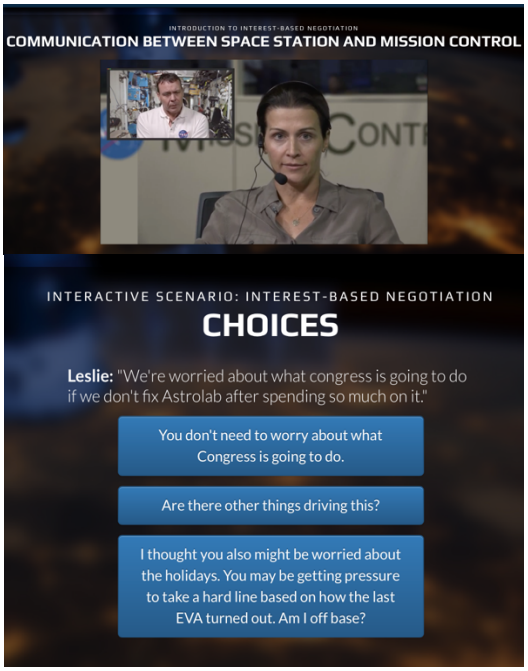

Fig. 2. Scenario 2 with Response Choices

The scenarios also highlight common pitfalls in negotiating, such as failing to demonstrate active listening, as well as trying to address relationship issues by making substantive concessions. How to react to emotional responses is reviewed, along with techniques to reenter "The Circle of Value" by demonstrating understanding (but not necessarily agreeing with) the other person's point of view. Ways of developing trust between parties is also discussed. The final section on choices exposes the user to the concept of the BATNA and highlights when this should be used and in what capacity. For the purpose of evaluation, the module finishes with three free-response questions and ten numerical scaling questions (0/strongly disagree -> 4/strongly agree).

This module was provided to multiple individuals with a variety of backgrounds, including a subset of nine individuals in ICEs (six from Hi-SEAS Mars simulation and three from Australian Antarctic Program). Participants' response selections for the short scenarios were tracked, as well their free text and numerical scaling answers. Data were analyzed for all participants who completed both the module and all of the numerical scaling questions (n=33). Responses from participants who did not complete the numerical scaling questions were not included for analysis. Completion of the free-response section was not used as an exclusion criterion. Response selections were analyzed for distribution as well as trends by population subset. Numerical scaling questions were analyzed by mode across the different subsets, comparing both the three distinct populations of Non-ICE, HI-SEAS Mars simulation (HI-SEAS) and Australian Antarctica Program (Antarctica), as well as an aggregated ICE subset (HI-SEAS and Antarctica) against non-ICE participant responses.

4. Results

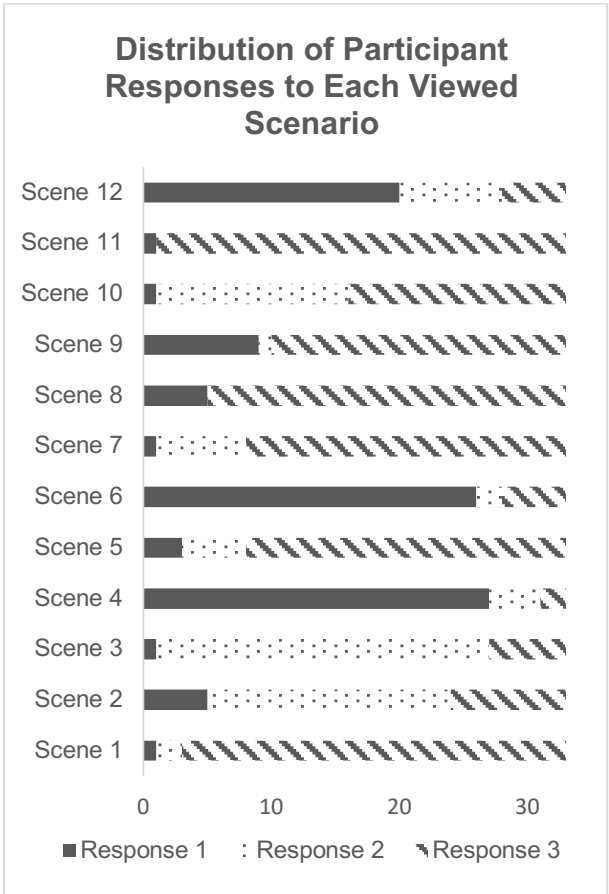

Figure 3. Distribution of Participant Responses to Each Viewed Scenario

Figure 3 shows the distribution of participant responses to each scenario. These data represent a participant's first selected answer choice only and do not reflect whether a participant returned to the beginning of the scenario and made an alternative selection. Excluding Scene 11 and Scene 8, all other scenes had at least one participant select each of the three responses. 58% of all participants (50% Non-Ice, 100% Antarctica and 66% HI-SEAS) went back to the beginning of at least one scenario to make an alternative section. 27% of all participants (13% Non-Ice, 66% Antarctica and 17% HI-SEAS) explored all three options of at least one scenario.

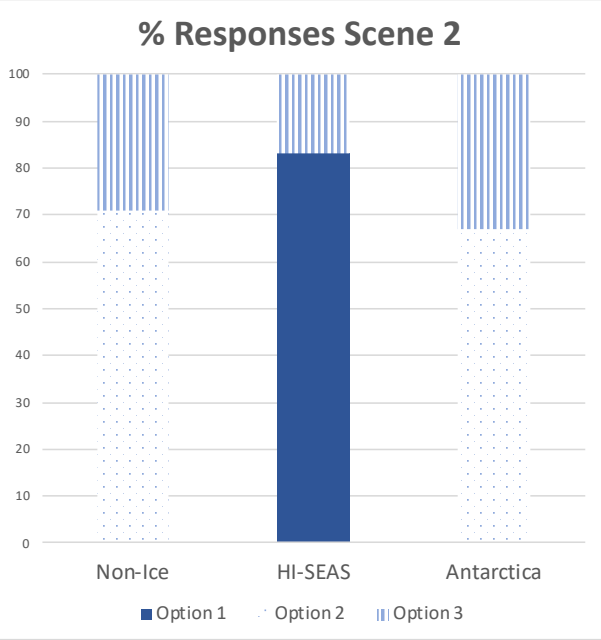

Figure 4. HI-SEAS inhabitant's choices differed significantly from those of other groups

Figure 4 highlights an example of variation in answer selection that occurred across several scenes by population subset. Figure 2 shows the three responses. Response 1 was not selected by any Non-ICE nor Antarctica participants, but was selected as the first response by 83% of HI-SEAS participants. Response 2 was selected by the majority of Non-ICE and Antarctica participants (71% and 67% respectively) but by none of the HI-SEAS participants.

Table 1 demonstrates the cumulative number of scaled responses, divided by population subset, to the ten statements participants were given at the end of the module.

Table 1. Number of Participants with Particular Reaction to Statements

	Strongly Disagree			Somewhat Disagree			Neither Agree Nor Disagree			Somewhat Agree			Strongly Agree		
Statements	Non-ICE	HI-SEAS	Antarctica	Non-ICE	HI-SEAS	Antarctica	Non-ICE	HI-SEAS	Antarctica	Non-ICE	HI-SEAS	Antarctica	Non-ICE	HI-SEAS	Antarctica
The characters seemed like real astronauts and NASA employees.	2	0	0	0	0	0	7	2	1	7	3	2	8	1	0
The scenario was like something that could actually happen on a real space mission.	0	0	0	0	0	0	6	0	0	7	4	1	11	2	2
The choices given in the scenario seemed like things a real crewmember might have actually said or done.	0	0	0	0	0	0	2	1	0	11	3	2	11	2	1
Mr. Weiss gave too much information in his spoken comments and advice during the interest-based negotiation activity.	6	2	0	8	2	2	4	1	1	5	1	0	1	0	0
The pace of Jeff Weiss' spoken comments and advice during the interest-based negotiation activity was too slow.	6	2	0	5	3	2	5	1	1	6	0	0	2	0	0
I found the Circle of Value framework valuable.	0	0	0	1	0	0	5	0	2	7	2	0	11	4	1
Overall, I found the activity valuable for learning about conflict management.	0	0	0	0	0	0	1	0	0	10	2	3	13	4	0
Overall, I found doing the negotiation activity enjoyable.	1	0	0	1	0	0	4	2	0	9	3	3	9	1	0
The interest-based negotiation activity will probably be valuable for new members of a team in an isolated and confined environment.	0	0	0	0	0	0	2	1	1	10	3	1	12	2	1
The interest-based negotiation activity will probably be valuable for veteran members of teams deployed to an isolated and confined environment.	0	0	0	1	0	0	4	2	1	10	3	1	9	1	1

Note: Total number of participants = 33 (24 Non-ICE, 6 HI-SEAS, 3 Antarctica). ICE = isolated and confined environments.

Table 2. Mode of Responses to Statements

Statements	Mode			
	All	Non-ICE	HI-SEAS	Antarctica
The characters seemed like real astronauts and NASA employees.	3	4	3	3
The scenario was like something that could actually happen on a real space mission.	4	4	3	4
The choices given in the scenario seemed like things a real crewmember might have actually said or done.	3	4	3	3
Mr. Weiss gave too much information in his spoken comments and advice during the interest-based negotiation activity.	1	1	1	1
The pace of Jeff Weiss' spoken comments and advice during the interest-based negotiation activity was too slow.	1	0	1	1
I found the Circle of Value framework valuable.	4	4	4	2
Overall, I found the activity valuable for learning about conflict management.	4	4	4	3
Overall, I found doing the negotiation activity enjoyable.	3	3	3	3
The interest-based negotiation activity will probably be valuable for new members of a team in an isolated and confined environment.	4	4	3	n/a
The interest-based negotiation activity will probably be valuable for veteran members of teams deployed to an isolated and confined environment.	3	3	3	n/a

Note: Total number of participants = 33 (24 Non-ICE, 6 HI-SEAS, 3 Antarctica). ICE = isolated and confined environments; n/a = not applicable. 0 = strongly disagree; 1 = disagree, 2 = neither agree nor disagree; 3 = somewhat agree; 4 = strongly agree

Table 2 is a simplified table showing the mode of responses to these statements.

Figure 5 highlights total participant response to the prompt "Overall I found the activity valuable for learning about conflict management."

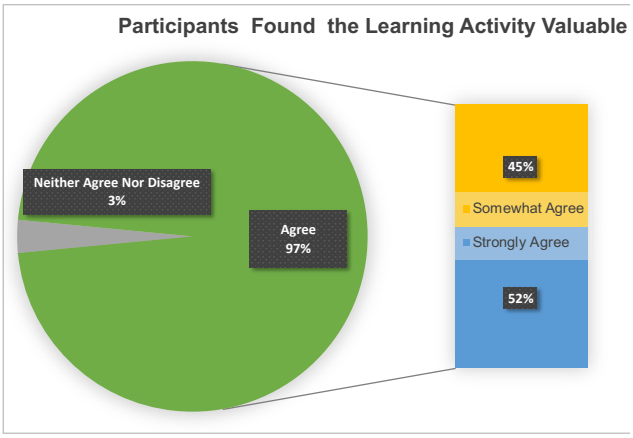

Figure 5. Participants Who Found the Learning Activity Valuable

5. Discussion

Figure 3 shows that the distribution among the three answer choices is not equal. While at first glance this might suggest that participants do not identify as strongly with some of the responses, the specific distribution by participants in certain settings as seen in Figure 4 suggests that environment can play an important role. In Scene 2, response Option 1 was highly favored by HI-SEAS participants and not selected by either of the other two subsets (Pearson Chi-Square $p<0.001$). This particular response choice suggests that the other person's concern might be misplaced (i.e. "You don't need to worry about…"). While it is unclear exactly what aspect of HI-SEAS might be causative (mindset of people selected for HI-SEAS, environment of HI-SEAS, shared experience etc.) this finding suggests that people in certain environments may be drawn to different responses.

Table 1 shows that 82% of participants found the module realistic, including 67% of ICE-participants. This was calculated by aggregating all 'somewhat agree' and 'strongly agree' responses for the first three statements. By absolute count, participants found the overall scenario itself and the dialogue/actions (statement 2 and 3) more realistic than the characters themselves (statement 1).

As seen in Figure 5, 97% of participants found the activity valuable for learning about conflict management, including 100% of ICE participants. The specific framework of "The Circle of Value" used in the module was felt to be valuable by 76% of participants. Most participants felt the module would be valuable to new members of a team in an isolated and confined environment (88% of all participants, mode=4; 78% of ICE subset, mode=3) as well as veteran members (75% of all participants, mode = 3; 67% of ICE subset, mode = 3).

Limitations of the study include a small sample size, particularly amongst participants in ICEs. By analyzing data only from those participants who completed both the module and the numerical scaling questions, a subset of participants is excluded. This subset could potentially include subjects who stopped because they did not find the module engaging or valuable. It should be noted however, that all ICE participants who started the module completed the module and answered all numerical scaling questions. To help with this potential bias, a functionality has been added to the program to allow a participant to comment why they are exiting the program before completion.

An important aspect of future work includes the addition of a follow-up questionnaire or prospective study to assess objectively whether the tools and skills presented in the training module are used by the participants, and if this knowledge enhances the ability of participants to manage conflict successfully.

6. Conclusions

The creation of this module demonstrates a novel, self-directed approach to providing vital conflict management skills. This web-based, interactive-media

module for IBN training is realistic and well received by users. This study suggests it is likely to be useful for both new and veteran individuals in isolated and confined environments, such as long duration space missions, as well as for anyone involved in a high-stakes negotiation where sustaining relationships is essential. Even when maintaining relationships is not critical, this approach addresses problems in a sensible way all parties can agree to. Future work includes further evaluations in Antarctica and with other workgroups.

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