DE-CODE

A Coding Scheme for Assessing Debriefing Interactions

Coding Manual

Version 1.0 (2017)

(This Coding Manual complements Seelandt, Grande, Kriech & Kolbe,
DE-CODE: A coding scheme for assessing debriefing interactions.)

Acknowledgements

This work was supported by a grant from the Swiss National Science Foundation (100014_152822). We thank Gabriel Friedli for his help during the development of this Coding Manual.

Purpose of DE-CODE

The purpose of DE-CODE is to measure verbal communication of debriefers' and learners' during debriefings in simulation-based training via event or time-based coding.

This manual provides a guide to apply the DE-CODE. It includes information on the development and use of DE-CODE.

Theoretical Background

DE-CODE is based on the methodology of team interaction analysis[1]. It was developed both deductively and inductively, based on science on team learning and debriefing[2-23] and on multiple analyses of debriefing conversations, respectively. It's development is described in detail in the original publication.

Architecture

DE-CODE consists of separate codes for debriefers' (Table 1) and learners' (Table 2) communication. The 32 codes for debriefers' communication are structured according to Tobert and Taylor's four types of speech (i.e., framing, advocating, illustrating, inquiring)[24] and an additional category *other* into framing (1.1), advocating (1.2), illustrating (1.3), inquiring (1.4), and other (1.5). The 15 codes for learners' communication are similarly structured into advocating (2.1), illustrating (2.2), inquiring (2.3), and other (2.4).

Applicability

DE-CODE is valid and reliable for both direct, on-site observation and video-based coding. It requires either event or time-based sampling.[25] Until now, it has been applied via event-based sampling by using Interact coding software (for video-based coding) or the corresponding iOS app (for live coding).[26] The duration of an event is registered by coding its beginning and end before it was allocated to a code.

Practical issues

Technical requirements: We recommend using coding software; an overview of suitable software tools can be found in Glüer.[27]

Time required for training coders: 30-35 hours for full DECODE version

Times required for coding: real time for on-site use, one hour coding for 15 minutes video-based material. For research purpose, we strongly recommend to perform live coding after having coded at least 30 videotaped debriefings.

Code assignment: Codes, descriptions, examples, and specific recommendations are provided in Table 1 (for assessing debriefers' communication) and Table 2 (for assessing learners' communication).

Table 1. Assessing debriefers' communication.

No.	Code	Description	Example	Specific recommendations for coding	Sample references
1.1	***FRAMING***				
1.1.1	Previewing	Debriefer explains purpose of the debriefing and introduces topics that will be discussed during the debriefing.	"We would like to talk about shared leadership and communication during stressful events."		[2] [13] [28]
1.1.2	Previewing the content of a video sequence	Debriefer explains purpose of a video sequence that will be subsequently shown.	"While watching the sequence, let's have a look at the handover between Markus and Anna."		Inductive
1.1.3	Structuring	Debriefer verbalizes the structure or procedure of the debriefing.	"I would like to listen to Peter's statement before talking about planning and initiating actions."	Includes all structuring statements except for previews, i.e. if debriefer announces what s/he would like to talk about codes as *preview.*	[29]
1.1.4	Communication between debriefer	Debriefers openly talk among each other about how to proceed in the debriefing.	"Shall we continue with…"	Addresses the co-debriefer.	[23] [29] [30]
1.2	***ADVOCATING***				
1.2.1	Observation	Debriefer describes what s/he has seen or heard a participant doing or saying during the simulation.	"I saw you checking the monitor … "	Refers to observations made during the simulated scenario. Code as *anecdote* if it contains observations that were made outside of the simulated scenario, e.g., during clinical work.	[2] [13] [28]
1.2.2	Pseudo-observation	Debriefer describes what s/he has seen or heard that is, however, not observable (e.g., emotions, cognition, perception).	"You were thinking that Albert should hurry up."	Debriefer describes processes that are actually not observable, e.g., cognitions ("you were thinking that…" or "you forgot to….") or emotions ("you were surprised ...").	Inductive
1.2.3	Opinion	Debriefer expresses her/his point of view.	"I expected you to go out and get the defibrillator." "I thought that was really good because … ."	May contain 'positive' and/or 'negative' critique. Code as *previewing* if debriefer verbalizes what s/he is going to talk about (e.g., I would like to talk about leadership). If debriefer says "I would like to talk about leader-	[2] [13] [28] [29]

				ship because I think this is an important topic", code says "I would like to talk about leadership…" as *previewing* and because "… I think this is an important topic" as *opinion*.	
1.2.4	Appreciation	Debriefer verbalizes appreciation for learners' actions.	"That was great." "Thank you for sharing your thoughts." "Thank you for participating in this simulation."	Includes explicit, standalone appreciations.	[30]
1.3	***ILLUSTRATING***				
1.3.1	Input simulation	Debriefer provides more detailed information about the development and/or background of the scenarios.	"Our scenarios are based on cases that were reported as an incident."	Includes the provision of any background information of the respective simulation scenario. Code as *psychological input* if given information includes input on psychological models or evidence relevant for learning objective.	[29]
1.3.2	Anecdote	Debriefer talks about personal experience.	"I was in a similar situation last week."	May include recollections of other training situations.	Inductive
1.3.3	Medical input	Debriefer provides detailed medical information.	"The resuscitation algorithm includes…."		[2 13 28]
1.3.4	Psychological input	Debriefer provides information on psychological research or psychological phenomena.	"Research has shown that communication in medical teams…"	Code as *psychological input* if communication adds information on psychological research and phenomena. Code as *input simulation* communication referred to the scenario design.	[11]
1.3.5	Demonstration	Debriefer demonstrate a certain behavior or communication style.	"One example for speaking up would be to…"	Debriefer actively shows a particular behavior. If s/he invites learners to actively practice a respective behavior, code as *role play*.	[11]
1.4	***INQUIRING***				
1.4.1	Emotion	Questions related to learners' feelings and reactions.	"How did you feel during the simulation?"		[2 13 15 28]
1.4.2	Realism	Questions related to the perceived realism of the scenario.	"How realistic was the scenario for you?"		Inductive
1.4.3	Behavior	Behavior-related question.	"What happened?"		[15]
1.4.4	Cognition	Cognitive-driven	"What was on your		[2 13 28 29]

		question.	mind in this situation?"		
1.4.5	Knowledge	Knowledge-driven question.	"How do you manage a difficult intubation?"		
1.4.6	Circular	Questions based on circular assumptions.	"What do you think Sandy would have needed from Albert to tell her worries?"		[11] [31] [32]
1.4.7	Idea or solution	Inviting learners to establish a link from simulation to real world context and the clinical setting.	"Which aspects of this case are similar to your daily work in the operating room?"	In contrast to *cognition,* the debriefer inquires for something new or hypothetical in nature and explicit addresses clinical work.	[11] [15]
1.4.8	Guess-what –I-am-thinking	Questions implicitly imposing the debriefer's point of view on the learner.	"What could have been done better?" "Wouldn't it have been better to …"?		[2] [13] [28] [32]
1.4.9	Clarification	Debriefer asks learners about missing facts or unclear points in order to find out more.	"Did you do that before Sandy came in?"	Debriefer aim to get a better understanding of context or to clarity misunderstandings. If the debriefer seems to imply a certain answer, code as *Guess-what-I-am-thinking*.	[29]
1.4.10	Conclusion	Debriefer asks learners what they have learned from the scenario and debriefing.	"What is your take home message?"		[2] [13] [28]
1.4.11	Inquiry	Debriefer invites learners to ask questions about missing facts or unclear points.	"Are there any further questions regarding the medical case?"	Debriefer explicit invites learners to ask questions.	Inductive
1.5	***OTHER***				
1.5.1	Summarizing	Debriefer summarizes the debriefing.	"In sum, we talked about communication between and within disciplines."	May occur at the end of a debriefing but also during the debriefing, e.g., before a new topic is being discussed.	[29] [30]
1.5.2	Normalizing	Debriefer comments on learners' reactions/experiences as being normal.	"Yes, and I think that this is normal."		[2] [13] [28]
1.5.3	Paraphrasing	Debriefer repeats in his/her own words what was said.	"If I understand you correctly, you emphasize the importance of having checklists in the operating room."	If debriefer summarizes learners' statement, code as *summary*.	Inductive
1.5.4	Repeating	Debriefer repeats what learner said.	"As I heard you saying earlier in the debriefing…"	Contrary to *paraphrasing*, *repeating* is closer to the learners' original wording.	[29]

1.5.5	Irony and humor	Debriefer tells a joke.	Debriefer tells a joke about stereotypes in medicine.		[30]
1.5.6	Laughing	Debriefer laughs.	Debriefer laughs because of a joke a learner was telling.	Laughing must be audible. Code as *irony or humour* if debriefer makes a joke.	[30]
1.5.7	Addressing somebody by name	Debriefer calls learners by name.	"Peter, …."		[29]
1.5.8	Role play	Debriefer initiates role play to practice certain skills.	"Let's give it a try and use a circular question to explore your colleagues' perceptions."	Debriefer invites learners to actively practice a respective behavior. If s/he actively shows a particular behavior, code as *demonstration*.	[11]

Table 2. Assessing learners' communications.

No.	Code	Description	Example	Specific recommendations for coding	Sample reference
2.1	***ADVOCATING***				
2.11	Feeling	Learner expresses his/her feelings.	"I'm feeling overwhelmed."		[15 30]
2.12	Description	Learner describes what happened.	"We waited almost 10 minutes before I called the surgeon."	Includes recollection of behavior / actions but no reflection thereof.	[15]
2.13	Evaluation of learners' action	Learner evaluates what was good or bad about his/her actions.	"I think it was great to perform ABC together."	If debriefing is conducted with multiple team members and includes learners who observed but did not participate in the scenario, coders are advised to remember who had been involved in the scenario, resulting in additional cognitive load during coding. Making respective notes prior to the debriefing might provide a remedy.	[15]
2.14	Evaluation of team members' action	Learner evaluates what was good or bad about his/her team colleagues' actions	"For me it was exceptional because I was not included in this conversation."	See 2.3	[15]
2.15	Explanations	Learner analyses why something happened.	"I thought the cable is connected."	Contains an explanation why learner did something during scenario without reflection.	[15]
2.16	Mental models	Learner verbalizes his/her internal thought processes, schemes or assumptions.	"I learned that…." "I'm used to do…"	*Mental models* go beyond *explanation* in the way that contains learners' beliefs, values, or assumptions about how something worked during the scenario.	[28]
2.17	Conclusions	From the discussion the learner concludes other actions that s/he could have done.	"I could have asked for help."	Contains lessons learned or AHA-moments.	[15]
2.18	Action plan	Learner describes what s/he will do differently in the future.	"I will speak up next time when I have a question regarding the medication dosage."	Contrary to *conclusion, action plan* is more specific and future-oriented.	[15]
2.19	Positive relevance	Learner verbalizes his/her perception that the simulation	"I know this from my daily routine."		Inductive

		is connected to their daily working setting or their behavior in the clinical context.			
2.110	Negative relevance	Learner verbalizes his/her perception that the simulation is not connected to their daily working setting or their behavior in the clinical context.	"I would not have done the same in the operating room."		Inductive
2.111	Positive evaluation of the simulation	Learner evaluates what s/he liked about the simulation.	"I perceived it as realistic."		Inductive
2.112	Negative evaluation of the simulation	Learner evaluates what s/he did not like about the simulation.	"I was not able to get into it."		Inductive
2.2	***ILLUSTRATING***				
2.2	Learners' anecdote	Learner talks about experience or personal moments.	"During my medical education, I was in a similar situation…."	Less reflective than *mental model*, more a recollection of something that had happened.	Inductive
2.3	***INQUIRING***				
2.3	Learners' inquiry	Learner inquires about missing facts or unclear points.	"I don't understand, what do you mean by "closed-loop communication"?"		Inductive
2.4	***OTHER***				
2.4	Expressions of humor	Learner laughs or tells a joke.	Learners are laughing.	Includes laughing and / or telling a joke.	[30]

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