

Appendix A: TDF Domains and Constructs (Cane et al, 2012)

| Domain (definition¹) | Constructs |
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| 1. Knowledge (An awareness of the existence of something) | Knowledge (including knowledge of condition /scientific rationale) Procedural knowledge Knowledge of task environment |
| 2. Skills (An ability or proficiency acquired through practice) | Skills Skills development Competence Ability Interpersonal skills Practice Skill assessment |
| 3. Social/Professional Role and Identity (A coherent set of behaviours and displayed personal qualities of an individual in a social or work setting) | Professional identity Professional role Social identity Identity Professional boundaries Professional confidence Group identity Leadership Organizational commitment |
| 4. Beliefs about Capabilities (Acceptance of the truth, reality, or validity about an ability, talent, or facility that a person can put to constructive use) | Self-confidence Perceived competence Self-efficacy Perceived behavioural control Beliefs Self-esteem Empowerment Professional confidence |
| 5. Optimism (The confidence that things will happen for the best or that desired goals will be attained) | Optimism Pessimism Unrealistic optimism Identity |
| 6. Beliefs about Consequences (Acceptance of the truth, reality, or validity about outcomes of a behaviour in a given situation) | Beliefs Outcome expectancies Characteristics of outcome expectancies Anticipated regret Consequents |
| 7. Reinforcement (Increasing the probability of a response by arranging a dependent relationship, or contingency, between the response and a given stimulus) | Rewards (proximal / distal, valued / not valued, probable / improbable) Incentives Punishment Consequents Reinforcement |

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| | Contingencies Sanctions |
| 8. Intentions (A conscious decision to perform a behaviour or a resolve to act in a certain way) | Stability of intentions Stages of change model Trans-theoretical model and stages of change |
| 9. Goals (Mental representations of outcomes or end states that an individual wants to achieve) | Goals (distal / proximal) Goal priority Goal / target setting Goals (autonomous / controlled) Action planning Implementation intention |
| 10. Memory, Attention and Decision Processes (The ability to retain information, focus selectively on aspects of the environment and choose between two or more alternatives) | Memory Attention Attention control Decision making Cognitive overload / tiredness |
| 11. Environmental Context and Resources (Any circumstance of a person's situation or environment that discourages or encourages the development of skills and abilities, independence, social competence, and adaptive behaviour) | Environmental stressors Resources / material resources Organisational culture /climate Salient events / critical incidents Person x environment interaction Barriers and facilitators |
| 12. Social influences (Those interpersonal processes that can cause individuals to change their thoughts, feelings, or behaviours) | Social pressure Social norms Group conformity Social comparisons Group norms Social support Power Intergroup conflict Alienation Group identity Modeling |
| 13. Emotion | Fear |

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| (A complex reaction pattern, involving experiential, behavioural, and physiological elements, by which the individual attempts to deal with a personally significant matter or event) | Anxiety Affect Stress Depression Positive / negative affect Burn-out |
| 14. Behavioural Regulation (Anything aimed at managing or changing objectively observed or measured actions) | Self-monitoring Breaking habit |

¹All definitions are based on definitions from the American Psychological Associations' Dictionary of Psychology'

Appendix B: Semi-structured draft interview guide for determining facilitators and barriers to use of the OR Black Box¹

Preamble

The general aim of the interview is to help us understand your perspective on using the Operating Room (OR) Black Box for research. Like black box recording systems used by the aviation industry, the OR Black Box will allow us to learn from mistakes and improve practice and patient safety. The OR Black Box involves the use of cameras, microphones, and various devices and sensors to record surgeries and analyze what happens in the OR.

We want to know what you think about using the OR Black Box for research. There are no right or wrong answers here. We are trying to understand how we can best introduce this technology at the hospital for future use in a way that takes into consideration what hospital stakeholders like yourself have to say. I'd like to start with some basics questions about your [role at the hospital/experience as a patient]

Patients:

1. Have you been a patient here before or do you have an upcoming surgery?
2. What type of surgery did/will you receive?

Clinicians:

1. How long have you been practicing at TOH?
2. What is your profession/speciality?

Senior Leadership Team (Administrators)

1. Describe your role at TOH.
2. How long have you been in this role?
 - a. **IF NOT a practicing clinician:** how long were you a clinician?

Thank you.

For the rest of the interview, I have some slightly more specific questions regarding your thoughts on the OR Black Box. Some questions may seem repetitive, but please bear with me as the questions are derived from different theories of human behaviour and we are trying to figure out which theories best apply in this area.

Are you ready to get started?

Knowledge (1)

3. Are you familiar with the use of black boxes in aviation? (*Prompt: What are they for, in your opinion?*)

¹ Interview questions may evolve throughout the study but will always follow the TDF.

4. Do you believe black boxes can be used in healthcare? (*Prompt: Why/why not? What purpose would they serve in the OR?*)

Emotion (13)

5. What is your initial reaction to the OR Black Box? (*Prompt: how does it make you feel?*)
6. Does hearing about the potential use of the OR Black Box make you feel worried or concerned?

Memory, Attention and Decision Processes (10)

7. What thought processes might guide your decision to participate in [administrators: facilitate/encourage] OR Black Box research? (*Prompt: "What goes through your mind?"*)
8. **For clinicians/administrators:** Are ongoing research studies an automatic part of your job or something you take time to think about? (*Prompt: routine, automatic*)
 - a. ***Follow-up to response:*** Would [your response] change if the OR Black Box was involved? (*Prompt: would the presence of the Black Box in the OR be something you would think about while in the OR [administrators: at the hospital], do you think you would stop noticing it after a while or not notice it at all*)
- For patients:** Are ongoing research studies something you take the time to think about as a hospital patient or are they a routine part of the process? (*Prompt: routine, automatic*)
 - a. ***Follow-up to response:*** Would [your response] change if the OR Black Box was involved? (*Prompt: would you forget about the Black Box on your way to the OR, would you start thinking about the Black Box on the way to the OR*)
9. Would participating in OR Black Box research be an easy or difficult decision to make? (*Prompt: Why/why not? Weigh pros and cons etc.*)

Social/Professional Role & Identity (3)

For clinicians/administrators:

10. Does OR Black Box research fit with your professional role? (*Prompt: why/why not; how*)
11. Is there anything in your professional role that would influence your decision to participate in [administrators: facilitate/encourage] OR Black Box research? (*Prompt: professional culture, organizational commitment, leadership, research aspects*)

For patients:

10. Does OR Black Box research fit with your role as a patient? (*Prompt: why/why not; how*)
 - a. ***IF NO:*** What about other societal roles? (*workplace, family, cultural, etc.*)

11. Is there anything in your patient [social] role that would influence your decision to participate in OR Black Box research? (*Prompt: e.g. responsibility to be involved, wanting to help others/improve safety*)

Environmental Context & Resources (11)

12. What aspects of the hospital environment would influence whether or not you participate in [administrators: facilitate/encourage] OR Black Box research? (*prompt: for example, hospital culture/climate*)
13. Are there any circumstances related to your professional or personal situation that might influence whether or not you participate in [administrators: facilitate/encourage] OR Black Box research?
14. What would help you overcome these problems/difficulties? (*Prompt: for example, guaranteed confidentiality*)

Intentions (8)

15. How motivated are you to participate in [administrators: facilitate/encourage] OR Black Box research? (*Prompt: scale of 1-10; why/why not*)

Goals (9)

16. Do you have other goals that might interfere with your willingness to have the ORBB used for research?
17. Do you want the OR Black Box to be implemented at The Ottawa Hospital? (*Prompt: why/why not*)

Beliefs about Capabilities (4)

18. How easy or difficult would it be to do your job [be a patient] at an institution using an OR Black Box?

Skills (2)

19. Do you foresee the use of the OR Black Box having an impact on your own (patients/non-clinician administrators: clinicians') skills? (*Prompt: why/why not; what kind of impact, scale 1-10*)

Social Influences (12)

20. Would any other team member [patients: family member/friend] influence whether or not you participate in [administrators: support] OR Black Box research? (*Prompt: who; why/why not*)
21. How might the views/opinions of others affect your likelihood of participating in [administrators: supporting] OR Black Box research?
22. Do you think your colleagues [patients: family members/friends] would generally agree with you on this issue?

Optimism (5)

23. What do you think will happen if the hospital used an OR Black Box? (*prompt: to patients, to colleagues, yourself, short and long term*)
 - a. To what extent do you think those things will actually happen?
24. What do you think will happen if the hospital does not use an OR Black Box? (*prompt: to patients, to colleagues, yourself, short and long term*)
 - a. To what extent do you think those things will actually happen?

Behavioural Regulation (14)

25. Do you expect you would participate in [administrators: support] OR Black Box research?
 - a. **If no to question 16...**
Why? What would prevent you from doing so? Would anything change your mind? (*Prompt: why/why not; what would*)
 - b. **If yes to question 22...**
Why? What would help you to follow through with this?
26. If you wanted to implement the OR Black Box at the hospital, what do you think would be the steps necessary to do this?

Beliefs About Consequences (6)

27. What do you think will happen if you are involved in [administrators: support] a surgery recorded by the OR Black Box?
28. What might be the consequences of using the OR Black Box? (*Prompt: to patients, to clinicians, to the hospital, to yourself, short and long term*)

Reinforcement (7)

29. Would you expect any incentives for participating in [administrators: facilitating/encouraging] OR Black Box research? (*Prompt: why/why not; what kind*)

That's all the questions I have for you. Is there anything else that comes to mind about this topic that I haven't asked about?

Thank you!