



HUMAN FACTORS INTERVIEW PROTOCOL (HFIP)

**AN INTERVIEW GUIDE FOR INVESTIGATING
THE HUMAN FACTORS
THAT AFFECT OPERATIONAL DECISION MAKING**



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UNIVERSITY**

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Introduction

Human Factors Interview Protocol (HFIP)

An interview guide for investigating the human factors that affect operational decision making

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This field guide for emergency service agencies explains how to conduct interviews that elicit high-quality recollections from agency staff about their experiences in the field. The Protocol aims to reveal what participants were thinking as they experienced events and how 'human factors' influenced their decisions and actions. It is intended to complement, not replace, other post-incident interview methods.

PART ONE

1. What is the Human Factors Interview Protocol (HFIP)?

- The Human Factors Interview Protocol is an interview method that identifies the behavioural factors that influence operational decision making. These factors function at individual, group and organisational levels.
- The protocol helps interviewers to both:
 - identify the human factors behind the decisions and behaviours that could compromise safety, and
 - acknowledge successful decisions and behaviours.
- The HFIP takes the interviewee through a recent incident using questions that are open-ended, non-judgmental and probing. The HFIP attempts to understand the incident as it unfolded, from the perspective of the interviewee, not just simply as hindsight.

2. What are human factors?

'Human factors' influence both how the human **body** operates (physiological) and how the human **mind** operates (psychological).

The HFIP is aimed at understanding operational decision making, therefore it focuses on factors that influence how the mind operates. Physiological factors are taken into account only in so far as they affect decision making.

Psychological human factors are classified as arising from either the **individual** or the **group**.

3. Examples of individual human factors

Even **before** decisions are being made, some human factors can influence **how** they are being made. These are known as 'predisposing factors' and can be both physiological and psychological.

Here are a few examples.

Predisposing Physiological States	<ul style="list-style-type: none">• Fatigue• Dehydration• Hunger• Illness or injury• Fitness level• Influence of alcohol, drugs, or some medications
Predisposing Mental States	<ul style="list-style-type: none">• Attitudes (e.g. personal values, expectations, preferences)• Emotions (e.g. morale, enthusiasm, worry, stress)• Motivation (e.g. personal goals, perceived rewards and sanctions)• Personality styles (e.g. optimistic, risk tolerant)

Human factors that help decision making include: perception (of sensory information, for example); memory (recalling information to help understand the current situation); and decision making (making a judgement or choice).

Below are some examples of how to frame interview questions around perception, memory and decision making.

Perception	<ul style="list-style-type: none"> • Hearing (e.g. what did the radio chatter tell you?) • Smell (e.g. what were you thinking when you realised you could smell smoke?) • Sight (e.g. were you able to see a smoke plume?)
Memory	<ul style="list-style-type: none"> • Perceptual information (e.g. what did the colour of the smoke plume tell you?) • Previous actions (e.g. how did your experience at a previous incident influence what you did?) • Anticipating events or actions (e.g. were you able to remember details of predicted wind changes?) • Knowledge base (e.g. what are the standard operating procedures related to this situation? What fire concepts were important?)
Decision Making	<ul style="list-style-type: none"> • Situation assessment (e.g. what was your understanding of the current situation? Was it accurate?) • Judgement (e.g. what information led you to that particular conclusion?) • Planning (e.g. was your plan still appropriate for the current situation?) • Action selection (e.g. how did you choose that action from a number of alternatives?) • Self-awareness (e.g. were you monitoring your stress level?) • Self-control (e.g. were your emotions under control?)

A third group of human factors also directly enable decisions to be executed. These involve communication (relating information to others) and action execution (effectiveness and appropriateness of carrying out actions).

Below are examples of how to frame interview questions relating to communication and how actions were executed.

Communication	<ul style="list-style-type: none">• Timeliness (e.g. was there a delay in getting the message to the fireground?)• Accuracy (e.g. was information correct?)• Clarity (e.g. were instructions clear?)• Conciseness (e.g. were communications too wordy?)
Action Execution	<ul style="list-style-type: none">• Implementation (e.g. were actions carried out correctly?)• Timing (e.g. were actions taken at the right time?)• Positioning (e.g. were appliances in the right place?)



4. Examples of group influences

Human factors that influence groups can be divided into two types; both relate to psychological processes.

Small group influences arise from the interpersonal dynamics of one's immediate work group (e.g. firefighter's crew and brigade members).

Large group influences arise from the organisations and groups of which one is a member (e.g. firefighter's perceptions of the fire agency and the wider community).

Small Group Influences	<ul style="list-style-type: none">• Team or group dynamics (e.g. team morale)• Familiarity (e.g. knowledge of the skills of other group members)• Interpersonal skills (e.g. mutual respect)• Leadership (e.g. consistent and appropriate group management)• Followership (e.g. the ability to follow others in a supportive way)• Cohesion (e.g. mutual supportiveness)• Trust and mistrust (e.g. perception that someone is an unreliable source of information)• Communication (e.g. relaxed and open or defensive and adversarial)
Large Group Influences	<ul style="list-style-type: none">• Organisational culture• Values and priorities• Beliefs• Perceived community expectations

5. Why human factors are important

Human factors have contributed to disasters involving loss of life and property and serious injuries across a broad range of industries, from aviation to mining, shipping and healthcare.

A famous example is the Tenerife airport disaster in 1977, in which more than 580 people died. Both individual human factors and group influences were identified as contributing to the tragedy.

Research from the United States highlights its impact in the emergency services sector, where reports of accidents, near misses, and demonstrably unsafe acts in the context of wildfire fighting have identified human factors as the primary cause in 34% of cases and as a major cause in 80% of cases (Wildland Fire Safety and Health Network, 2004).

6. How does the HFIP ensure quality data while relying on the interviewee's memory?

The HFIP ensures that memory recall is both comprehensive and accurate by employing three key features:

1. The presentation of adequate memory cues

- The interviewee is guided through the incident a number of times, each time probing for more detail.
- Recollections at early stages of the interview enable more complete and reflective recollections when the incident is revisited later in the interview.

2. The minimisation of distorted recollections

- The interview should be conducted as soon as possible after the incident, while experiences are readily recalled.
- The Protocol encourages interviewees to recall how they experienced the situation at the time, rather than how it might or should appear now to an outsider, including to an interviewer.

3. Freedom from criticism, censure, or embarrassment

- Interviewers should be courteous, attentive, non-judgmental and interested in the experiences of the interviewee.

A no-blame attitude is essential to help the interviewees feel comfortable enough to disclose their thoughts and recollections.

It is vital that interview procedures and guidelines meet each of these requirements. With the right conditions, the HFIP is capable of generating comprehensive verbal accounts which are as free as possible from serious distortion.

7. Why you should use the HFIP

The HFIP approach does not replace formally mandated operational investigations. HFIP interviews are quite different from formal operational investigations, which are intended to diagnose and rectify 'faults'. The interview methods appropriate for a formal operational investigation are unlikely to be appropriate for, and may actually distort, the findings of a human factors-oriented investigation.

Therefore, incidents should be investigated using both the formal operational **and** human factors approaches **independently**, for a number of reasons. The HFIP has a:

- **Different purpose** – to identify the human thought processes behind safety compromises, rather than identifying who made what mistakes.

- **Different focus** – to determine what, and how, mental (psychological) processes led to safety-compromising orders and actions, rather than finding faults in procedures, equipment, directions and activities.
- **Different attitude** – it is no-blame and non-judgmental.

The HFIP is not designed to be a critical incident stress debriefing tool; it is not aimed at improving the mental well-being of the interviewee. There are, however, many points of overlap between the methods employed in the HFIP and those used in stress-debriefing protocols. Participation in a HFIP-structured interview is unlikely to worsen any possible stress reactions of the participant, and may, in fact, be a helpful experience for the interviewee. Experience in using this protocol has shown that most interviewees feel a benefit from telling their story and are pleased to be involved in a process that helps to improve their agency.

8. Who can be interviewed using the HFIP?

The HFIP can be used:

- With all ranks and levels of command, from crew leaders to incident management team members.
- At district, regional or state role levels.
- At all levels of incident severity, including major accidents, near misses and non-problematic (benign) incidents.

The HFIP may be used for interviews involving both 'benign' and severe fires because the human factors that affect safety can apply across many scenarios.

9. What can the HFIP be used for?

Emergency service agencies can use the HFIP in a range of situations, some of which may overlap. These include as:

- A tool for an agency's research into the role of human factors in current operational decision making.
- An adjunct to existing debriefing procedures to improve the lessons learned from routine incidents.
- An interview method for use in confidential 'no fault' near miss and accident investigations.
- A training reinforcement that can be incorporated into field exercises, computer-simulated exercises, sand-table exercises and tactical decision games.

Although primarily developed for use with firefighters, this interview

method could also be used to improve safety in a wide range of industry and emergency settings.

10. Do you need to have training in psychological techniques to be an interviewer?

No. There is nothing mysterious about the HFIP. The skills needed are the everyday skills of relating well to people.

Follow these simple rules:

1. The interviewee talks; you listen.
2. Ask; do not interrogate.
3. Be responsive. Don't sit in stony silence – but do not side-track the interview.
4. Never criticise, either directly, or indirectly. Be aware that the phrasing of questions can imply criticism ('But why did you . . . ?')
5. If the interviewee is very self-critical, reassure the interviewee that he or she did what seemed best at the time, under those circumstances.
6. The interview must be a team-effort, with the interviewer and interviewee working together to better understand what happened and why.
7. Finally, if the interviewee doesn't cover an angle you need to address, take the initiative: ask the right questions.

PART TWO

11. Using the HFIP – the Key Steps

The HFIP's 8-step interview procedure is designed to maximise the quality and quantity of information recalled and recounted. It requires the interviewer to be polite, respectful, non-judgmental and interested in the interviewee's experiences.

Remember that each interview will be different. You will have to tailor your approach to the unique combination of the incident, the interviewee, and the interview circumstances. (See 'General tips' section below for guidance on appropriate interview conditions.) Your objective is to get good quality, reliable information related to issues of safety on the fireground from the individual involved.

Step 1. Set the parameters

This will vary greatly depending on the purpose and format of the interview.

Key task: Begin to establish a rapport with the interviewee.

- Introduce the purpose of the interview.
- Outline the interview process.
- Find out how much time the interviewee has.
- Explain the procedures for keeping the interview confidential.
- If the individual has the option of not taking part, confirm whether the person still wishes to continue.
- Begin recording the interview. (Whether you take notes or tape the interview will depend on the purpose and privacy implications to be considered. See 'General tips' section for recommendations about an interview 'Go Kit'.)

Step 2. Establish the story summary, with its 'chapters'

This forms the foundation for the next critical section of the interview.

Key task: Get an outline of the incident chapters that will guide further discussion, without going into great detail.

- Help the interviewee to tell you a summary of their story of what happened during the incident.
- If the incident is lengthy, ask the interviewee to select a particularly significant aspect, such as their first shift.
- Encourage the interviewee to explain the sequence of significant events in the incident as he or she experienced them, not what other people did or what they have heard since.
- Use maps (printed or drawn), diagrams or timelines to allow you to better understand what happened so that your questions are relevant.
- If the interviewee is offering too much detail, suggest they take an overview of the key events and say you will cover the detail of each stage later.
- As the person talks, list what seem to be the key events that break the story into 'chapters' to be explored in detail.
- Check with the interviewee that your list of key events or chapters matches their recollections.

Step 3. Deepening the understanding of each incident chapter

This is the core of the interview and will take the most time.

Key task: Probe for as much detail as possible about the human factors and psychological processes that drove the decisions and actions (you may want to refer to the full list of possible human factors).

- Go through each chapter of the incident and encourage the interviewee to recall and describe the experience in as much detail as possible.
- Consider the 24 hours before the incident as the first chapter, in order to identify predisposing physical and mental states.
- Be alert for significant developments and important decisions and actions, especially those with potential safety implications.
- Be flexible, having regard for your available time, the nature of the incident, your interviewee.
- Focus on those issues you consider critical and deserving of more time.
- Use probing questions to encourage recollection of:
 - what was noticed and attracted attention
 - understanding and expectation of the situation
 - general concerns or feelings
 - specific decisions or plans formulated
 - intentions formed and actions initiated
 - safety issues or concerns.
- Towards the end of this stage, you may want to ask about specific potential safety issues if the interviewee has not spontaneously brought them up.

Step 4. Stepping back – wisdom of hindsight

This is to capture the interviewee's evaluation of how things went using hypothetical questions.

Key task: Adopt a 'no-blame' manner to help the interviewee to use hindsight to identify errors and possible mistakes.

- Examine what the person might have done differently: 'If you could turn the clock back and do things over again, what, if anything, might you do differently, and why?'
- Investigate what might have gone wrong but didn't: 'Suppose someone less experienced than you had filled your role at this incident. What are

the most likely mistakes he or she might have made that could have compromised safety?’

Step 5. Check: Is there anything else?

This is to ensure the interview process has captured everything the interviewee feels is important.

Key task: Identify whether there is anything important the interviewee wishes to add.

- Obtain any important factual details about the incident that have not emerged already that might be unavailable from other records.
- Ask if there is anything else of importance of which you should be made aware.
- Ask if any previous experiences, incidents or ‘war stories’ might have influenced what the interviewee did during the incident.
- Ask about the interviewee’s emergency service background e.g. overall experience, training levels, current agency role, operational experience level, years of experience at command role (these details may be altered or removed later to maintain confidentiality).

Step 6. Big picture – work group factors

This may be adapted to suit the purpose of the interview.

Key task: Get the interviewee’s perspective on the small group factors that influence their primary work group, including the safety issues.

- Ask the interviewee about the small group factors that influence their brigade or primary work group.
- Ask how the brigade/group/region is going with regard to crew safety.

Step 7. Even bigger picture – organisational culture

This may be adapted to suit the purpose of the interview.

Key task: Get the interviewee’s perspective of the culture of the organisation – what actually happens, not just what the organisation claims.

- Ask how the interviewee regards the organisation or agency’s performance in managing fires.
- Seek the interviewee’s opinion about the organisation or agency’s performance with regard to safety generally.

Step 8. Wrap it up

Key task: Make the interviewee feel appreciated for making a valuable contribution to your investigation.

- Thank the interviewee.
- Remind the interviewee of confidentiality agreements.
- Explain what happens now to the data you have collected.
- Do not cut off the interview too abruptly.
- Tell the interviewee how to contact you if he/she recalls something important later.

General tips

1. Be organised and have the necessary interview materials (see the full HFIP report for a suggested 'Go Kit' which includes such items as a pocket audio recorder and spare batteries, and your interview 'refresher card').
2. Conduct the interview in a private place and minimise distractions (turn off your mobile phone and/or pager).
3. Make sure that the interviewee understands that the interview is not inquisitorial, judicial or disciplinary and that all information remains confidential. If this is not true, be very clear about what the interviewee's rights are as a participant.
4. This is the interviewee's story and you should help him or her to tell it in his or her own way even if it departs from the Protocol. If this happens, either tactfully guide them back to the Protocol where practicable, or try to make sure that all of the points in the Protocol are covered before you conclude the interview.
5. Be responsive and encouraging, without interfering in the person's story.
6. Ask open-ended questions rather than 'yes – no' questions, invite more input and paraphrase to check the accuracy of your understanding. These techniques aid the interviewee's recollection.
7. If you need to ask 'yes – no' questions to establish facts, ask follow-up questions to elicit more details.
8. Make notes about the content and process of the interview **and** your own reactions as soon as possible after the interview, preferably before you conduct another interview.
9. The only way to become a better interviewer is to practise as much as possible and learn from each interview by listening to replays. Ask yourself: **What can I do better next time?**

More detailed suggestions on using the Human Factors Interview Protocol are in the full Bushfire CRC HFIP report at <http://www.bushfirecrc.com/research/d23/d232.html>

For further information please email m.omodei@latrobe.edu.au.



Additional resources

Crandall, B., Klein, G., & Hoffman, R. (2006). *Working minds: A practitioner's guide to cognitive task analysis*. Cambridge, MA: MIT Press.

Dekker, S. (2006). *The field guide to understanding human error*. Burlington, VT: Ashgate Publishing.

Okroy, R., & Lubnau II, T. (2004). *Crew resource management for the fire service*. Tulsa, OK: PenWell.

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