

Practicalities of conducting a safety climate survey to measure your employee's current attitudes and perceptions towards safety

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1. Introduction

A good safety climate is characterised by a collective commitment and concern, whereby all employees share similar positive perceptions about organisational safety features. An organisations prevailing safety climate serves as a frame of reference that shapes the safety-related attitudes and behaviours of its employees. In turn, this influences the outcomes of the organisation's safety improvement initiatives.

Because people's perceptions of safety, affect and determine their daily safety-related behaviours, it makes sense to identify employees positive and negative perceptions of the organisations safety management system. This is normally achieved by conducting safety climate surveys that focus upon particular organisational characteristics thought to be important to the organisation's management of safety. In this way, deficiencies in the way safety is currently operationalised in an organisation can be identified, so that the appropriate remedial actions can be taken.

2. Overcoming employee's resistance to taking part in the survey

It must be stated that, in the authors' experience the overwhelming majority of employees welcome the opportunity to express their views about the effectiveness of their organisations current safety management system. However, a minority of employees tends to be resistant to the process, partly because:

- of suspicious about the organisation's intentions;
- personnel are required to complete the questionnaire in their own time;
- the survey is seen as a waste of time, because the organisation has not undertaken any remedial actions for safety issues already identified by other means.

Others simply do not wish to take part in any survey whatever its focus. Overcoming resistance can be achieved by:

- Allowing employees (or their representatives) to help design, administer and analyse the survey, or at least be involved in choosing the key characteristics to be measured;
- Providing incentives for completing the survey (e.g. donating a sum of money to a preferred charity for the department with the greatest response rate);
- Using an external resource to provide neutrality and expertise.

2.1 Communications

Whichever, option is followed, the company management (preferably the CEO) should write a letter (attached to the survey) endorsing the survey, which also emphasises that the survey is anonymous, that no attempts will be made to identify individual respondents, and that all those involved will receive feedback about the results at discussion meetings. Indeed, it could

be argued that communicating the purpose of the survey, how it will be conducted, and what will occur as a result of the survey is the most important technique available for overcoming people's resistance to participating in the survey.

2.2 Timing the distribution of the survey

When to distribute the survey is a further consideration, as resistance caused by other organisational issues may impact on the response rate (i.e. the numbers of people completing the survey questionnaire). The timing is a particularly important issue when:

- Substantial numbers of employees are on holiday
- Wage negotiations are not going well
- Industrial relations problems are being experienced
- Plant shutdowns are in progress
- Major changes in an organisation's structure are underway
- Other surveys (e.g. Quality, Human Resources) have been completed within the previous two months

3. Determining how you can best identify the safety issues of key importance

Before starting to develop a safety climate survey, it makes sense to determine the survey's objectives, how these are going to be achieved, and what use is to be made of the results.

3.1 Aims & Objectives

In most instance companies are interested in identifying safety management system deficiencies that pertain to the whole organisation (i.e. business unit), to each individual department, and in some cases by hierarchical level, gender, age, length of employees service and / or years job experience. These aspects are termed 'demographics'. If an organisation intends to analyse the resulting data by these organisational aspects, a method for capturing this data will need to be included in the survey at the outset.

Thinking through such issues will also help to determine the scope of the survey. In a multi-national, or multi-site company decisions about which business units will take part, need to be made. Once this has been determined, the safety issues of importance to these business units can be determined by:

- Analysing the company's accident records to highlight particular systems, behaviours, procedures, etc., that have been associated with a large number of historical accidents / incidents.
- Undertaking group discussions with employees to identify their main concerns;

In essence the idea is to generate an item bank of statements related to a set of particular topics (e.g. management's commitment to safety) that capture the important aspects of the topic (usually between 5-10 individual statements per topic).

Alternatively, it is possible to make use of propriety computerised safety climate measures such as the HSE Safety Climate Tool (HSE, 1997) or The B-Safe Computerised Safety Climate Survey (1998). The advantage is that these contain pre-prepared questions that have been extensively researched, the analyses of responses are simplified, and they are available for immediate use.

After a decade of safety climate research (conducted by the author and colleagues in construction, manufacturing and local government, and by the author in the chemicals, foods, & paper industries) the following eleven dimensions have been shown to provide the main focus for ascertaining an organisation's current safety climate. Each of these is clearly related to an effective safety culture.

- 1] Management Commitment
- 2] Management Actions
- 3] Personal commitment to safety
- 4] Perceived risk levels
- 5] The effects of the required work pace
- 6] Beliefs about accident causation
- 7] The effects of job induced stress
- 8] The effectiveness of safety communications within the organisation
- 9] The effectiveness of emergency procedures
- 10] The importance of safety training
- 11] The status of safety people & safety committees within an organisation

Contextual features also known to affect safety climate include:

- 13] The effectiveness of Standard Operating Procedures
- 14] Responses to Breaches of Standard Operating Procedures (SOP's);
- 15] Housekeeping
- 16] Job Design Changes related to Multi-Skilling
- 17] Job Design Changes related to Manual Handling
- 18] Role Ambiguity in light of Organisational Changes
- 19] Perceptions about working under adverse market conditions
- 20] The effects of reductions in manning levels
- 21] Personnel's commitment to the organisation
- 22] The Effects of Quality Issues on Safety
- 23] Permit to Work Systems
- 24] Accident / near-miss reporting systems

These contextual features can exert important influences on the development of a safety culture / climate. In a sense these contextual features provide a pick and mix menu, for organisations to consider when they conduct a safety survey, depending on the prevailing circumstance that the organisations finds itself in.

It is also a good idea to allow respondents to record their own specific views by including a few (e.g. 4) open-ended questions at the end of the questionnaire. These might ask questions like 'What are the most important factors adversely affecting your safety? In this way respondents provide detailed information about specific safety issues affecting them.

4. Keeping the survey manageable

4.1 Respondents completion time

It is important that the survey does not take too long to complete. The average time should not exceed 25-30 minutes. This normally requires that the numbers of statements people are asked to rate be kept to a maximum of 100. Conversely, surveys with less than 50-60 statements tend to be quite superficial and miss important aspects of safety. Likewise for ease of understanding the statements should be written in such a way that they are:

- Short - not much longer than fifteen words
- Simple - focused on only one complete thought
- Familiar - using everyday language

Providing specific instructions about how a person's response to an item statement should be recorded can also help reduce completion time, as it reduces ambiguity and uncertainty. Usually, respondents are asked to rate an item statement on a scale that ranges from 1-7, each of which represents their guided response. For example, 1 would represent 'Highly Disagree' while 7 would represent 'Highly Agree'. There is usually a mid-point on the scale that represents a neutral response (e.g. number 4). People are generally asked to record their responses by circling one of the numbers on the scale (Computerised safety climate surveys allow people to enter their responses with the mouse on predetermined buttons)

5. Survey Distribution

5.1 Distribution method

Once you have constructed the survey instrument, you will need to distribute it to employees in those business units previously selected. Surveys with very few respondents, in relation to the total number of employees, tend to be viewed as unrepresentative. In turn this leads to people disregarding the survey results. Thus a golden rule of thumb is to distribute the survey in such a way as to maximise the response rate. The main options available include:

- Give the printed version directly to employees
 1. Who return the survey with a stamped return envelope provided
 2. Who return the survey in specially prepared mail boxes placed at strategic locations within the company

Both of these methods will result in an average response rate of around 30-40%. The major problem of these methods is ensuring that the completed surveys are returned by a specified date. The use of incentives may prove useful here.

- Providing a central venue where employees can visit to complete the survey document, during company time.
- Asking employees to complete the survey during a safety meeting.

In both cases, the completed survey is completed 'on the spot' and then placed in a sealed envelope and either handed in to the project co-ordinator, or posted in a collection box. The

major advantages of these two methods are that [1] it demonstrates management's commitment to the survey, and [2] the return of the completed responses is under much greater control. Typically, the response rate from these latter two methods is in the region of 70-80%.

Computerised versions also allow the survey to be completed via the organisations 'intranet'. Response rates for this method typically achieve 70-90% *when respondents have direct access to the computer network*. The advantage of this method is that employee's responses are entered directly into the database, thereby significantly minimising the time taken for computation of the results.

5.2 Survey Sample

A decision has to be made about whether to survey:

- a small representative sample of employees,
- the whole workforce,
- the whole workforce and contractors.

If the choice is a small representative sample (termed stratified sampling), care has to be taken to ensure it is truly representative of the whole workforce. It is not sufficient to just survey one or two particular groups (e.g. line-managers, or operators, or trades people, or salaried staff, etc). The best way of ensuring that a sample is truly representative is to select the same proportion of the various groups, across the board (e.g. 20% of line-management, operators, trades people and salaried staff). To ensure the results are statistically valid, there should be at least 30 people in each group (if company size allows). Nonetheless, it is important to recognise that stratified sampling tends to lead to the results being viewed with suspicion by the vast majority of employees, as they do not believe that the results are truly indicative of the current safety climate. This is particularly the case for those who were not chosen to take part.

The author strongly recommends surveying the whole of the workforce, as this provides everybody with the same opportunity to express their views. Moreover, it not only demonstrates management's commitment to the survey, but also overcomes problems of validity and dispels people's doubts about the accuracy of the results. Although it must be recognised that this will increase the required resources, the cost difference between stratified sampling and surveying the whole workforce is not that great, while the benefits in terms of information, and the survey's validity can be considerable.

Surveying your longer-term contractors can also add value to the survey results, as you will be able to ascertain how your current safety efforts are impacting on them.

6. Ensuring rapid feedback mechanisms

Analyses of the survey should be completed within a maximum of six weeks from receipt of the completed survey forms. Once you have analysed the survey responses you will be in a position to provide feedback to the respondents. It is very important that employees are provided with feedback about the surveys results as rapidly as possible (i.e. within 8-10 weeks

after survey completion), the mechanisms for which should have been resolved during the planning stages. A number of methods are available and include:

- Providing the raw results to everyone via a letter
- In-house newsletters
- Cascading the results through line-management
- Posting summaries on noticeboards
- Face to face group de-briefing sessions

Each of these is dealt with in turn as follows:

- *Immediately providing the raw results to everyone via a letter:* Although intuitively appealing, the problem with this method is that the real underlying issues will not have been identified. However, some organisations may prefer to do this on the basis that it provides a time buffer while further in-depth analyses is undertaken. If adopted, it is important to inform employees that further analyses is still being undertaken, what this analyses consists of, and the date that these results will become available.
- *In-house newsletters:* These can be ideal vehicles to communicate a summary of results. This should include positive as well as the negative features identified from the survey. In most cases, however, due to time delays caused by editorial and printing times, this is a secondary mechanism that is used to reinforce other forms of communication, and often communicates events to a much wider audience (e.g. the remainder of the organisation). As such, it is not a suitable method to provide primary feedback to the survey respondents.
- *Cascading the results through line-management:* Again this method is intuitively appealing. Often however, the cascade system does not work well, as the information tends to reach only a few employees. Moreover, because most line-managers will not have been involved in the survey's development, there is a serious danger of the findings being distorted as each individual manager interprets the data in different ways. This is more likely to be the case when the results show that the safety performance in a particular managers department is not as good as the remainder of the organisations. As such this method is not recommended.
- *Posting summaries on noticeboards:* Posting a summary of the results on noticeboards should only be used as a reinforcement mechanism, as many employees do not actually look at them for information. It is better if this method is adopted to supplement information given at face to face briefings. Even better is to send everybody a copy of the results via the internal mail system.
- *Face to face group de-briefing sessions:* This is the recommended method for providing feedback about the survey, as it provides all employees with an opportunity to ask questions, make comments, etc. In the main such feedback briefings take about one hour. However, it is important for the survey developers to do this, as they possess intimate knowledge of all the issues involved. Equally important is to make sure that such briefings are held for night shift employees during the night shift. Because both line-managers and

employees attend these meetings it is often the case that further issues arise at these meetings, which can be immediately discussed and the appropriate action plans developed.

7. Determining who should be provided with what level of feedback

Often in-depth feedback is first given to the sites senior management team. This feedback often comprises of the sites overall safety climate score, with the sites overall scores for each of the measured dimensions (e.g. Management's Commitment to Safety) laid out on a graph. Depending on the scale used the mean average scores are placed in a range, anchored by expressions of acceptable performance. The author uses a scale ranging from Alarming (1) to Excellent (6) (See Cooper, 1998 for a discussion on how to measure safety climate). Neutral responses are often omitted from the analyses to avoid distortion, although in theory these could still be reported. Any dimension whose mean average score is below three would indicate that remedial action is warranted. If the scores on every dimension exceed 3.0 (indicating that the organisation is doing quite well), remedial actions would focus on the lowest scoring dimensions. Once the sites overall dimension scores have been ascertained it is a good idea, to analyse the results by department. The scores for each department are then compared to the sites overall scores for each dimension. This provides an indication of each department's standing in relation to all others. Dimension scores that fall below the sites average scores for that dimension again indicates that remedial actions are warranted. In this way, it is possible to provide a department by department analyses. It is also possible, and very desirable to run multiple-regression analyses on the survey data, as this will identify the most appropriate remedial actions that the organisation should undertake, in order of priority. Multiple regression analyses should be conducted with the whole sites' scores and by each individual department when the number of responses exceeds 30 (less than 30 respondents leads to doubts about the validity of the multiple regression results).

In terms of what level of feedback to provide to survey respondents, the author strongly recommends complete openness, as the purpose of the feedback is to generate discussions about the specific findings from each department and to generate a list of remedial actions. If the results, for example, indicate that employees believe management's commitment to safety is low, the discussions would centre on what employee's feel that management need to do to demonstrate their commitment to safety. The appropriate remedial actions would then be undertaken by those concerned.

The results of the survey for the site as a whole and each department's results (as well as any other analyses by demographic breakdowns: e.g. accident Vs non-accident involved employees) would first be presented to the sites senior management team. Any remedial actions that are agreed by the senior management team should form part of the feedback to the remainder of employees.

In principle, face to face feedback should be given to all employees. This normally consists of summary information about the sites overall results, a league table of departmental results, in-depth feedback about the results pertaining to the employees department, and any remedial actions already agreed by the senior management team. At least one hour should be set aside for each of these feedback meetings, as personnel will want to discuss the results and make suggestions for remedial actions. ***It is of the utmost importance to ensure that any deficiencies identified are addressed.*** If the agreed remedial actions are not carried through,

not only will personnel distance themselves from any further safety improvement initiatives, but they are also less likely to respond to any follow-up surveys.

8. Assessing the appropriate level of detail & frequency of follow-up surveys

In regards to the level of detail required from a follow-up survey, it is probably wise to repeat the first initial survey in its entirety. This is so that the effects of any remedial actions can be measured and assessed. The author, for example, has measured various organisations safety climate immediately prior to implementing a behavioural safety initiative. The behavioural safety programme has then been implemented. Some 12-18 months later a follow-up survey was conducted. These follow up surveys tend to reveal statistically significant improvements in employee's perceptions on the vast majority of the dimensions measured. In the same way, organisations can use the survey to assess the impact of safety training initiatives, informational safety campaigns, or any other type of safety improvement effort.

In principle, even without implementing any specific type of improvement effort, follow-up surveys are undertaken every 18-24 months, provided that all the issues raised in the first survey have been completed. Repeating the survey in this way enables the senior management team and the workforce to keep their finger on the pulse of the organisations safety management efforts, and undertake the appropriate remedial actions.

9. How to use the results to set performance targets

9.1 How to set targets

One of the major aims of conducting a safety climate survey is to identify deficiencies in the organisations safety management systems, working conditions, and safety-related behaviours. Once identified it is incumbent upon personnel to implement the appropriate remedial actions. This will involve setting performance targets. Although this sounds simple, there are a number of important process features, which help to ensure that a target will be met. In essence these are reflected in the easily remembered acronym 'SMART':

- **Specific** - clearly and precisely defined
- **Measurable** - so that levels of performance can be monitored and assessed
- **Agreed** - with those responsible and accountable for achievement
- **Realistic** - achievable but also difficult
- **Time bound** - deadlines for achievement

Specific performance targets (e.g. all senior managers to conduct a weekly safety tour) remove any doubt as to what is expected. This means that targets need to be clearly and precisely defined. A clear, specific target also helps to ensure that the target is measurable. A measurable target is vitally important if people are to track their progress towards the target's achievement. However, a target will not be met unless people are committed to achieving it.

Gaining such commitment can only be bought about by gaining the agreement of those responsible and accountable for actually achieving it. The advantage of such agreement is that it clarifies:

- Any potential obstacles which may interfere with target achievement;
- The best strategy to adopt to overcome any obstacles,
- The necessary resources.

Importantly, the degree of challenge represented by the target(s), will determine the amount of effort that people are willing to exert to achieve it. However, people are reluctant to attempt to achieve unrealistic targets, which is another reason for agreeing targets with those charged with implementation. A deadline for the target achievement also focuses people's attention and actions, and mobilises their efforts so that the target is achieved within the specified time period.

9.2 How to identify & set remedial action targets

The number and type of remedial actions resulting from the survey will depend upon those aspects of safety that have been measured, and how the survey data have been analysed. In essence the results of the survey should indicate which areas need to be targeted and why. Low scoring dimensions should be examined in-depth to identify the salient issues, by focusing on each of the within-dimension questions in workgroup discussions, and attempts made to find the appropriate solutions. Once identified, these are prioritised according to ease of solution (quick & easy fixes). Those requiring nothing more than simple remedies, which can be achieved very quickly, should be undertaken first, as this keeps up the momentum for safety already bought about by the surveys focus. Those requiring medium to longer-term solutions should be also be prioritised by time (i.e. by weeks or months), with the target date for completion also being specified.

The author finds it useful for the workgroups to first try and rectify those aspects of performance that are within their control. For example, the results may indicate that employee's feel that the perceived risk attached to some tasks / activities are unacceptable. This may be because they have not yet been risk assessed. The appropriate action is to get the workgroup membership to conduct the risk assessments (in conjunction with their line-management) within a given timeframe (i.e three months). These may reveal that there are particular sets of behaviours that employees could engage which would mitigate the risk. If this were the case, agreement would be sought from the workgroup membership as to their validity and practicality. Once the behaviours have been agreed by all concerned, the membership's agreement would be sought for them to engage in these behaviours.

Alternatively, the results may indicate remedial actions beyond the workgroups scope of control. For example, the risk assessments may reveal that capital expenditure or maintenance is required. If this were the case, authorisation for the funding and /or resources would be sought from the senior management team. Agreement to the provision of these would provide management with the perfect opportunity to demonstrate their commitment to the safety survey and to safety in general. Return communications to the workforce should include the specific remedial actions being taken, the costs involved, the timetable for various milestones, the people allocated responsibility, and the completion date.

9.3 *Feedback Mechanisms*

A monitoring mechanism is absolutely vital if the remedial actions are to be completed on time. This could simply be a computerised database located in the organisation's safety department, whereby job-completion sheets are entered and analysed on a monthly basis. Alternatively, a safety committee (or one of its sub-committees) could be given the task of monitoring the remedial actions emanating from the survey, and each job's completion. In either event, it is vital that every completed action is publicised to the remainder of the workforce. Such publicity/ feedback communications to the workforce should include the specific remedial actions undertaken, the costs involved, the timetable of milestone achievements, the person / people who had been allocated responsibility, and the date completed.

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