

Introduction - Safe Behavioural Management

226302001-KM-01- KT 04



QCTO: Occupational Health,
Safety Quality Practitioner
Qualification – NQF Level 2

ISO NET (Pty) Ltd
Learner Guide

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SAFE BEHAVIOR

Purpose of the Knowledge Modules

- Explain what is meant by behaviour and how the behaviour of people influence their health and safety
- Describe the factors that influence the behaviour of people and give examples of this in a work environment
- Identify and explain the role of behavioral modification in influencing the overall health and safety of employees
- Explain what contribution leadership can make towards creating a culture where unacceptable behaviour regarding health and safety issues are not tolerated

Introduction

Thousands of organisations throughout the world have implemented behavior-based safety in the quest to prevent incidents and injuries from occurring.

Judged on the results the question is no longer whether it works, but rather why it does not work for some organizations. The answer is really simple: companies which have applied the principles of the behavior-based safety correctly and integrated the process into their safety system have succeeded in improving their safety performance.

Successful implementations resulted in organisations breaking out of their inconsistent safety performance and reaching levels of safety performance they were never before able to achieve despite having fully implemented traditional safety systems and techniques.

Many organisations have seen their injury rates halved within months of introducing a behavior-based safety plan.

Key behavior definitions

Introduction

In this part we are to discuss the following key behaviour definitions:

- Behavior.
- Relationship behavior.
- Caring behavior.
- Non-caring behavior.
- Task behavior.
- Safe behavior.
- At risk/substandard behavior.

Substandard acts and conditions are often called “**unsafe acts**” and “**unsafe conditions**”; however, we prefer to call them **substandard acts** and **substandard conditions**. **Referring to them as sub-standard implies that some sort of standard exists or should exist**, and that the acts and conditions are therefore controllable.

Substandard acts and conditions are signs that underlying problems exist within the system for preventing losses. As in medicine, treating symptoms often diverts attention away from identifying and correcting the root causes.

“Prescription without diagnosis is malpractice”

It is a common myth that 85% or more of all incidents are caused by substandard acts or behaviours of people. This thinking is not only misleading, it diverts attention away from identifying and solving root causes. These root causes are directly affected by the systems of work and must be addressed for long-term improvement in the SHEQ programme.

To move beyond treating symptoms, questions such as these must be asked: Why did the condition exist? What caused the substandard act to take place? Where are opportunities to correct the root causes, which led to this condition?

These questions will lead to the discovery of the root causes of the substandard acts and conditions. The answers, which they yield, will point you in the direction leading to long-term improvements in the SHEQ system.

Behavior

When we use the word behavior we mean:

- The things people do, and
- The things people do not do.

The Behavior Based Safety plan focuses on two types of behaviors namely;

- relationship behavior and
- task related behavior.

Relationship behavior

Relationship behavior can either be performed in a caring or a non-caring manner.

Both have a significant impact on the receiver.

In the work context, the way employees are treated will have a significant impact on how they perform their tasks.

Caring behavior

These are behaviors that, if performed by any person towards another person, results in an almost 100% assurance that the other person will feel valued for who they are and for their contributions. This will have a positive impact on how employees perform their tasks.

Non-caring behavior

These are behaviors that, if performed by any person towards another person, results in an almost 100% assurance that the other person will **feel devalued**. **This will have a negative impact on how employees perform their tasks, for example, counter- control, learned helplessness and even sabotage**

Task behavior

Tasks can be performed either in compliance or non-compliance with rules, standards, and procedures. Both have an impact on safety and work performance.

Safe behavior

This behavior, that if performed, by any person, results in an almost 100% assurance that injuries and losses will be prevented.

At risk behavior

At risk behaviours are injuries in the making.

This behaviour, that if performed, put the person, peer workers, his/her family and the company at-risk. In other words, unsafe behaviors are deviations from safety standards, rules and procedures.

The behavior-based safety Plan

Top-down Bottom-up process

The behavior-based safety plan is a top-down, bottom-up process and implemented from the highest to the lowest level of employees in an organisation.

Management and employee teams are established and the teams identify non-caring and at risk behavior they sometimes perform and then use the methodology of the behavior-based safety plan to eliminate non-caring and at risk behavior.

Focus of the Behavior Based Safety plan

The focus of the BBS process is to eliminate non-caring and at risk behavior from all the levels of the organisation.

Leading indicators are upstream measurements that are deployed in order to prevent injuries from occurring.

The behaviour-based process measures behavior through a process of observations, in order to assess the rationale of safe to at risk behavior and caring to non-caring behavior.

In comparison with the early warning power of the behavior-based plan approach to safety performance, the reliance on injury rates as the sole measure of performance shows up for what it is – reactive.

Why behavior-based safety

In the 1930's H.W. Heinrich revealed through his research that at risk behavior are the direct cause of the majority of injuries and accidents. During the 1960's and 70's the research of Frank E. Bird and George Germain confirmed this finding.

Other experts, such as Dan Peterson, Dr. Beth Sulzer-Azaroff, Thomas Krause and Scott Geller, have supported the view that at risk behavior cause the majority of accidents and injuries.

The question may be asked at this point why employees perform at risk behavior. Is it possible that an employee can knowingly perform an at risk behavior and not anticipate the possibility of an injury?

Well, the answer may seem simple but it is not. In some cases employees are forced to perform an at risk behavior because of substandard conditions or they are forced to use substandard tools and equipment. In other cases it is to their advantage, since at risk behavior are more convenient and time saving than to perform a safe behavior.

Furthermore, at risk behaviour in the average case can be performed many times without resulting in an injury.

Although we know that the actions or inactions (behavior) of line management and supervisors can cause employees to perform at risk behavior, we are only going to focus on the at risk behavior that employees perform out of their own accord.

At risk behavior that employees perform out of their own accord are learned behaviors. In other words, employees perform at risk behavior by choice to gain positive consequences such as avoiding effort and to save time.

However, if the at risk behavior is repeated many times without causing a negative consequence, conditioning has taken place. Conditioning means habit forming. In other words, when a person have reached the point where they have conditioned themselves into a habit of performing at risk behavior, then performing at risk behavior is no longer a matter of choice but a matter of habit.

Once a person is conditioned or orientated to perform at risk behavior, such a person has set an "injury trap" for themselves.

Although at risk behavior can be performed in the average case many times without resulting in an injury, there is no doubt that the at risk behavior will eventually result in a temporary or permanent disablement and even a fatality.

The reasoning is simple, if a person plays Russian roulette long enough (at risk behavior); the person will end up by shooting him/her self.

Changing non-caring and at risk behavior

In the construction sectors and other industries there are numerous examples of employees who have suffered serious injuries or have died because they performed at risk behavior.

Sadly some of the injuries and deaths occurred in the presence of team members. In other words, team members permit each other to expose themselves to hazards, to work in substandard conditions and to use substandard equipment and do nothing to correct each other.

Because of this fact, it is imperative to understand that employees need to understand that they must participate in the management of safety.

Entrenching caring and safe behavior into an organization is a critical responsibility of not only management but shop floor employees also.

Behavior-based safety is a plan that not only focuses on the behaviors of management but also on the behaviors of employees.

The behavior-based safety plan uses the principles of:

- reinforcement,
- peer pressure,
- coaching techniques
- to eliminate non-caring and at risk behavior.

Factors Affecting Employee Behaviour

There are several internal as well as external factors affecting employee behaviour. Let us go through them in detail:

Leadership

Managers and leaders play an important role in influencing the behaviour of individuals at workplace. It is the responsibility of leaders to set a direction for team members. In majority of the cases, it has been observed that employees do not feel like going to work when they have strict bosses. You need to stand by your team always.

Guide them and help them in their day to day operations and help them acquire new skills and upgrade their knowledge. Make them feel important. As a leader, you need to be a strong source of inspiration for your subordinates. If you do not reach office on time, how can you expect your team members to adhere to the rules and regulations of organization?

Work Culture

Employees need to feel comfortable at workplace for them to stay positive and happy. Rules and regulations should be same for everyone. Employees ought to be encouraged to respect their reporting bosses and follow the code of ethics. Do not have complicated reporting systems. Transparency at all levels is essential.

You must know what your team member is up to and vice-a-versa. Job security is one of the most crucial factors affecting employee behaviour. Stand by your team at the times of crisis. Do not throw them out during bad times. Believe me, they will never leave you.

Job Responsibilities

Employees should be asked to do what best they can perform. Do not overburden employees. Encourage them to upgrade their skills from time to time.

Effective Communication

Managers need to communicate effectively with team members. The moment, employees feel left out, they lose interest in work. They need to have a say in organization's major decisions. Let them express their views and come out with their problems. Grievances need to be addressed immediately.

Family and Personal Life

Trust me, if you fight with your family members or relatives in the morning, you feel restless the whole day. It has been observed that individuals with a troubled background or problematic family life tend to behave irrationally at workplace. Employees who have strained relationships with family members like to sit till late at work and spoil the entire work culture.

Individuals from very poor families also have a habit of stealing office stationery and taking things to home. Conflicts in personal life lead to stress and irrational behaviour. Also, individuals should try not to bring their personal problems to work. Try to keep your personal and professional life separate.

Relationship at Work

It is necessary to have friends at the workplace. You need people around to talk to, discuss and share experiences. It is really not possible to work in isolation. Not allowing employees to interact with fellow workers leads to frustration and stress at workplace. Avoid arguing with team members.

Ways to Influence Employee Behaviour

Let us go through some ways which go a long way in influencing employee's behaviour. It is essential for managers to guide their team members and encourage them to behave sensibly at workplace. Employees need to feel important at workplace for them to develop a positive attitude and a sense of loyalty and attachment towards organization.

Managers need to acknowledge the hard work of employees. Appreciate them in front of others for them to feel motivated and perform better even the next time. They would not only feel good about the organization but also encourage others to pull up their socks and work harder. Give them correct feedbacks. If the hard work of employees goes unnoticed, they would never feel like working and often think of changing their jobs. Reward them suitably. It is essential to value each individual's contributions.

Make sure no employee is overburdened. Roles and responsibilities of employees ought to be as per their specialization, interest level and expertise. Job mismatch leads to confusions and employees eventually lose interest in work. In such cases, they often waste their time in browsing useless websites, chatting with friends and doing all sorts of unproductive tasks.

Employees need to be aware of the rules and regulations of organization. Understand what your manager expects of you? Remember, you are not a kid who can shout or roam around at the workplace. Do not forget that there is a certain way to behave at workplace. You need to behave sensibly. Follow the office timings. If your office timing is 9 AM to 6 PM, make sure that you are in the office till 8.55 PM.

Do not make fun of employees who do not perform well. Criticizing them will not only demotivate the employees but also make them feel left out. You need to deal with them intelligently. Sit with them and find out where they are lacking and what all assistance they expect from you. Instead of shouting on them, discuss their problems and help them find a solution. Find out what all additional skills would help them deliver better.

Let them open up and come out with their problems. Do not address their grievances in public. They might not like it and would always hide their problems in future. Show that you care for them.

Managers need to sit with their team members and monitor their performances on a regular basis. As a manager, if you yourself are not serious, how can you expect your team members to concentrate on work? Never badmouth your organization or clients in front of your employees. Interact with them as much as you can. Enquiring about their personal lives make them feel happy and valued.

Allow them to take some decisions on their own. This gives them a sense of responsibility towards work and organization. Managers should trust their employees. Grant them decision making rights and allow them to work on their own within the specific guidelines. Do not interfere much in their work.

Employees need to have freedom of expression. Let them speak and express their views and opinions. They need to have a say in organization's major decisions.

Types of Employee Behaviour

Let us go through following five types of employee behaviour at workplace:

Task Performers

Such individuals are well aware of their key responsibility areas and what they are supposed to do at the workplace. Every individual needs to have some goals in life. Task performers set targets for themselves and strive hard to accomplish tasks within the stipulated time frame. Set a direction for yourself. It works. The roles and responsibilities should be in line with organization's goals and objectives.

Task performers concentrate on their work, never lose their focus so that they meet deadlines and achieve targets on or before time. Such individuals work in close coordination with clients and customers, train their fellow workers and try to finish tasks on time with minimum possible errors. They do not believe in working alone and prefer working in teams. Working in unison helps them not only meet and exceed superior's expectations but also accomplish tasks within the desired time frame

Organizational Citizenship

In today's scenario of cut-throat competition, organizations need to provide something extra to clients for them to survive in the long run and outshine competitors. Remember, mere performing daily job responsibilities would not help. You need to think out of the box, if you aspire to reach the top slot within the shortest possible time frame. Find out what extra, apart from your regular job, you are doing for the organization.

Managers need to encourage employees to gain from each other's knowledge and expertise. Help your colleagues. Lend a sympathetic ear to their problems. If one of your team members is not able to perform a particular task, sit with him, brainstorm ideas and help him find an appropriate solution. Show genuine courtesy towards fellow workers. There is absolutely no harm in knowledge sharing. Help your co workers acquire new skills and learnings.

Counterproductive Work Behaviour

Individuals with counterproductive work behaviour have a tendency to harm their organization. Such individuals not only speak ill of their organization but also abuse fellow workers and pass lewd comments. They are often involved in objectionable activities and doing unproductive tasks which spoil the entire work culture.

Individuals with counterproductive work behaviour are often indulged in thefts, leaking confidential information, data tampering and so on. Such individuals need to be dealt with patience. Encourage them to get rid of their negative traits, else show them the exit door immediately.

Joining and Staying with the Organization

It is essential for individuals to stay with the organization for quite some time. Organizations need to treat employees with respect for them to stick around for a long time and do not even think of quitting their jobs. When talented people leave, knowledge is lost, eventually work suffers. Talent acquisition professionals ought to check the background, past track record and credibility of new joiners to avoid problems later on.

While hiring, do not forget to find out how frequently they have changed jobs in the past.

Maintaining Work Attendance

Employees need to attend office regularly. Take a leave, only when there is an emergency. Employees who find work as a mere source of burden and have nothing new and interesting to do, take frequent leaves as compared to individuals who love coming to work.

Dealing with Unacceptable Employee Behaviour

Not everyone knows how to behave at the workplace. There are some people who find it extremely difficult to reach office on time, concentrate on work and maintain the office decorum. Now, what do we do with such employees? Believe me, scolding them, criticizing them, abusing them will make situation even more worse. You need to deal with them tactfully. Never make them feel that they are unwanted within the organization.

Let us go through some tips which would help you deal with problematic employees and their irrational behaviour at workplace.

Never ignore them. Lend a sympathetic ear to their problems. Remember, there has to be a certain reason as to why an employee behaves in an unacceptable way. As a manager, it is your duty to find out the cause. If someone is coming late to work daily, find out whether he stays too far from the office or has some other problem. Believe me, the other person would feel happy to see your concern and try his/her level best to change.

Take action immediately. Do not wait for the right day to come. Sit with them, speak to them, discuss their problems and try to resolve the same as soon as possible. Problems left unattended only escalate. You have to be patient with them. They might not open up on the first attempt. Some people don't even realize that they are the problem creators and need to change.

As a manager, it is your duty to make them realize that their behaviour is not at all ethical and they need to behave as a mature professional. Be polite with them. If you shout at them, they

will not only become stubborn but also speak ill of you. Trust me; they will not even bother to listen to you. Throwing them out is not the only solution. Try if you can mould them and make them realize their own mistakes.

Grievances need to be addressed in private. Take the person into the conference room or meeting room and address the issue calmly. Do not allow anyone else apart from the individual concerned to be a part of the meeting. How would you feel if your problems are addressed in public? In fact no one likes it. Motivate them to get rid of their negative traits and qualities.

Guide them in their day to day work. Let them know how a small change in their behaviour would create wonders for them. Nothing is more important than self realization. Set targets and link them with incentives, cash prizes, additional perks and so on. Encourage them to participate in various training programs willingly and not for the sake of marking attendance. Counselling is essential.

If the employee still does not behave in appropriate manner, ask him/her to find a new job. You need to make them realize as to why you do not need them in the system and how their behaviour is spoiling the work culture? In most cases, employees do change and start behaving sensibly. If you still do not find any change in him/her, please show the exit door immediately.

Employee Behavioural Issues

One would find problematic employees everywhere. They need to be dealt with utmost patience and maturity. An employee with a “Problem attitude” is a nightmare not only for the team managers but also for the entire organization.

Let us go through few common employee behavioural issues.

Do not carry your ego to work. Remember, ego has no place in organizations. You need to respect each and every individual who is directly or indirectly associated with the organization. You can't afford to be rude with an individual just because he is an executive or comes to office by public transportation. Such things hardly matter at workplaces where work speaks for itself. Speak politely and softly.

Employees do not follow the rules and regulations of workplace. Some employees have a tendency to come late to work, sit idle and leave on time. The entire day, they would either be on phone chatting with friends or waste their time gossiping and loitering around. Such individuals' only work when their Bosses are around.

They avoid taking ownership of their jobs and merely depend on blame games. Receiving their monthly pay check is the only reason as to why they attend office. Believe me; such an attitude will not help you in the long run. You need to be serious towards your work if you wish to climb the ladder of success within the shortest possible time frame.

Individuals prefer working in isolation and are reluctant to share knowledge and information with others. They do not believe in helping others and are often lost in their own world. Employees need to work in teams for them not only to finish assignments on time but also brainstorm ideas, think out of the box and come to innovative solutions, eventually benefitting the organization.

Problems arise when employees treat their organization as a mere source of earning money. Some individuals think that taking office stationery to home is absolutely normal and does not cause any major harm to the organization. What they do not realize is that taking something

home which is meant to be used in office only is equivalent to stealing. How would you feel if someone calls you a thief? Obviously no one would like it.

What is the need of stealing office property? Tampering with important information is a crime. Do not disclose confidential matters to any of your clients. It pays to be loyal towards one's organization. You need to respect your organization to expect the same in return.

Some individuals have a habit of badmouthing their organization and speaking ill of their bosses. Never criticize your team members. If you have a problem with someone, it is always better to discuss and sort out issues in private. There is no point of cribbing over minor issues.

Avoid speaking lies at workplace. Why can't we be honest with our bosses? Believe me, no one will mind if we take leaves for genuine reasons. No one will ask you to come to office if you are extremely unwell.

One of the most common employee behavioural problems is that people do not enjoy their work. Try to do something new and innovative every day. Discuss with your reporting manager immediately if there is a job mismatch. Do not accept responsibilities just because your Boss has asked you to do so. Learn to say a polite but firm no if you feel you are overburdened or would not be able to do justice with the new role.

Some individuals do not willingly participate in employee development activities. Do not attend trainings just to mark your attendance. Try to extract as much as you can. Do not hesitate to upgrade your skills with time and acquire new learning. There is nothing to be ashamed of if you are lacking a particular skill. Find out what all additional skills would help you perform better. Register for various online or distance learning courses to hone your skills.

Role of Motivation in Employee Behaviour

Every organization expects its employees to behave sensibly, adhere to the rules and regulations and follow the codes of conduct. There has to be some ethics at workplace, where every individual is morally responsible for his/her own behaviour. Do not attend office just to receive your monthly pay check. Yes, money is a strong motivating factor but moral values, discipline, ethics are equally important.

After all, we all are answerable to ourselves. Aren't we? How can we accept our pay check when we ourselves are not sure of our contribution to the organization? Please be honest to your organization and most importantly yourself.

Remember, the way you behave at the workplace speaks volumes of your character, upbringing and family background. Gossiping, stealing, spreading baseless rumors, fighting over petty issues do not help in the long run.

Motivation plays an important role in employee behaviour.

Managers ought to motivate their team members to behave as a mature professional. Encourage your subordinates to set an example for others. Make them understand how behaving well would help them make a mark of their own and stand apart from the crowd. They need to realize themselves the importance of behaving well at workplace.

Sit with your team members and know if at all they are facing any sorts of problems or need any assistance and guidance. Trust me, they feel cared for. Acknowledge their hard work and

appreciate them whenever they perform something extraordinary. A pat on their back and simple words like “Wow”, “Well Done”, “Good job done” go a long way in motivating employees and influencing their behaviour. Appreciate them in front of others.

Also put their names on notice boards for others to see as well. Reward them suitably. This way, employees not only develop a sense of attachment towards their organization but also motivate others to behave as per standards for a healthy work culture. Why do you always have to tell them to behave well? Such things ought to come from within. Employees tend to behave irrationally either when they are not satisfied with their organization or there is a job mismatch.

Jobs need to be assigned as per employee’s educational qualification, specialization, expertise and interest levels. Make sure individuals are aware of their duties and what is expected of them? Small initiatives like “Employee of the month”, “Star of the week”, “Best Performer” not only motivate employees to deliver their level best but also encourage them to behave well at the workplace.

Trust them, give them additional responsibilities and let them take some decisions on their own. Be logical. Do not expect them to attend office on their birthdays. Encourage them to wind up work on time, call it a day and spend quality time with friends and family. Try to know them on a personal level as well. Make them feel comfortable at workplace if you really expect them to stick around for a long time.

After all, one spends the maximum part of his/her day at workplace. Employees tend to steal whenever they are under any financial crisis. Make sure they get their salaries on time. Individuals should have the liberty to walk up to their manager’s cabin in case of queries. Monitor their performance and give them correct feedbacks. Do not ignore their problems. Let them feel important and indispensable resources for the organization.

Role of Communication in Employee Behaviour

Communication is one of the most essential factors influencing employee’s behaviour. Employee’s perception towards the organization and their team manager determines their behaviour. Communication enables employees to understand what their organization wants them to do? Communication helps in changing an individual’s attitude and thought process.

Managers need to know whether their team members are facing any sort of problems or not? How would you come to know what your subordinates are up to unless and until you interact with them? Problematic employees, if ignored become a major cause of trouble later on. Sit with them, discuss and try to resolve the problem as soon as possible.

You need to make them feel special and important. Show that you care for them. If you come across any employee who does not come to office on time and sits till late, intervene immediately. Do some research personally. Find out whether everything is fine on his/her personal front or not? It has been observed that individuals who have strained relationship with their partners or family members prefer working till late to avoid problems at home.

Such individuals not only suffer from stress but also spoil the work culture. Call them to your cabin or conference room and discuss in private. Try to give them a solution. Lend a sympathetic ear to their problems. Discussions always lead to concrete solutions.

It is essential for managers to sit with their team members at least once in a week. Monitor their performance regularly. Give them correct feedbacks. Assign them new responsibilities and

encourage them to accomplish tasks within the stipulated time frame. Believe me, this way; employees develop a sense of loyalty and attachment towards the organization. They feel happy coming to work.

Some people have a habit of fighting over petty issues. Speak to them and make them aware of the ill effects of conflicts and misunderstandings. Make them realize how important it is to behave sensibly at the workplace. Employees need to interact with each other to break the ice and feel comfortable at the workplace. Rather than fighting, it is always better to talk and find a mutually beneficial solution. If you are facing any sort of trouble, please do not hesitate to discuss with your superiors.

There is no use of cribbing and criticizing others. Verbal communication plays a crucial role in strengthening the relationship among fellow workers and their team managers. Managers need to pay attention to the needs and demands of employees. Communicate and help the employees understand the company's goals and objectives.

Make sure employees understand their roles and responsibilities. Communicating by speaking face to face rather than interacting only through emails plays an imperative role in motivating the employees to deliver their level best.

Communication helps employees understand organization's behaviour standards and how they need to behave as a mature and sensible professional.

Greet your employees with a smile. Remember, a pleasant smile can not only make the other individual happy but also set his/her mood for the day. Communication helps employees develop a positive attitude towards work and organization on the whole.

Role of Work Culture in Employee Behaviour

Work culture plays an essential role in influencing employee behaviour. An employee needs to feel comfortable at workplace for him to deliver his level best.

Encourage your employees to work in teams rather than working alone. Individuals who work in isolation tend to be overburdened and hence are frustrated and often criticize fellow workers and superiors. Let people take help of each other. Encourage effective communication at workplace.

Employees should be able to interact with each other to share their experiences and come to innovative solutions. Half of the problems evaporate in a friendly work culture. People feel happy coming to work and seldom complain or crib over petty issues. Conflicts and misunderstandings lead to no solution. Trust me; you do not feel like stepping into your organization where team members do not gel with each other.

No employee can work at a stretch and it is essential to take breaks in between. Being too strict with employees does not help. No one will bother to listen to you. Encourage employees to interact with individuals of other departments as well. Individuals sort out half of their problems just by discussing things amongst themselves. Managers need to trust their employees.

Adopt a flexible attitude. Do not impose unnecessary restrictions on them. Allow them to take decisions on their own. Let them take ownership of their jobs. Employees this way start taking their jobs seriously and avoid getting into nasty office politics. Encourage employees not to make fun of co workers.

Each and every employee ought to be treated as one. Never humiliate anyone just because he/she is poor or comes to office by public transportation. It hardly matters. It is really difficult to work in an environment where people criticize each other and pass lewd comments. Female employees ought to be treated with respect. Do not try to dominate or exploit them.

Rules and regulations should be same for every employee. How can you scold your executive when the Vice President or General Manager also comes late to work? There is absolutely no need of granting any special liberties to people representing top management. If you do so, please do not blame others for not adhering to codes of conduct.

Be logical to your team members. Do not force them to attend office on their birthdays or other special days. It is absolutely okay if they take leave for genuine reasons. Do not interfere too much in their lives. Small events and get-togethers also lead to a healthy work culture and individuals feel attached towards the organization.

Why do employees badmouth their organization? Why do people think of changing their jobs within six months? Why do individuals always complain about their jobs? Think. The answer is really very simple.

Such things happen when there is nothing new and interesting to do. The job needs to be challenging. Sincere and diligent employees ought to be appreciated. Hard work must not go unnoticed. Competition is essential but it should not lead to unnecessary pressure on employees. Grievances must be discussed in private. Employees should feel safe in the organization.

Managing Employee Behaviour Problems

Remember, negative behaviour of a single employee can spoil the entire work culture. One needs to behave sensibly and follow the rules and regulations of the organization. It is mandatory for employees to maintain the decorum of the workplace and behave as mature professionals. Behaving irrationally at the workplace will not only spoil your relationship with reporting managers but also reflect your poor upbringing.

Managers should not only depend on human resource professionals to manage the behaviour of employees. In fact, everyone can take the initiative. If you feel your team member is not behaving well, please do not hesitate to correct him/her. Find out whether the other person is aware of the policies of the organization or not? If not, guide him/her immediately. Lend a sympathetic ear to their problems. Listen to their grievances and try to provide them a solution. Never make fun of anyone.

Team leaders need to encourage their team members to interact with each other. An individual might not open up in front of his/her manager on the first attempt but he/she would definitely share his/her problems with his fellow workers.

In fact, the best way to manage employee problems is to discuss with the individual concerned. Ignoring problems only make the situation worse. Problems need to be addressed at the right time to avoid major troubles later on. Not every employee is same. Every individual has different issues and concerns. Try to find out the root cause of their problems.

Never discuss issues and grievances in public. Ask them to meet you either in your cabin or conference room/meeting room. You need to make the other person feel cared for. Showing employees the exit door is not the only solution to manage employee problems. After all how

many new talents would you recruit? What is the guarantee that the new employee would not create any further problems? Counselling works.

Motivate them to open up and come out with their problems. Majority of the times, employees are not even aware of their negative traits and assume that their behaviour is as per workplace ethics. You need to make the other person realize how his/her irrational behaviour is affecting other employees and spoiling the overall work culture. Never be rude to problematic employees. Trust me, the problems would escalate.

Employees need to be told about the rules and regulations of organization at the time of joining itself. Issue them employee handbooks for their future reference. Rules ought to be same for everyone irrespective of his/her designation.

Employees need to feel comfortable at workplace. Make sure job responsibilities are assigned as per individual's knowledge, skills and expertise. Work ought to be delegated equally among team members. No employee should be overburdened.

No employee should be given special advantages. Favouritism leads to problems. The moment, an employee feels left out, he /she starts cribbing over petty issues and often lose interest in work. Managers need to sit with their team members on a regular basis, monitor their performances and give them correct feedbacks.

Stand by your team members at the times of crisis or unfavourable circumstances, if you really want them to stick around for a long time. Greet them with a smile. Knowing them on a personal level also helps. Encourage employees to respect their female counterparts.

Acknowledge their hard work and appreciate them in front of all. Rewarding them suitably also goes a long way in inculcating a sense of pride in the employees. They develop a sense of attachment towards the organization and never even think of changing their jobs.

Workplace behaviours affecting health and safety

Several behaviours at work can have an effect on a worker's health and safety. Mental health can be affected by workplace behaviours such as conflict, bullying, violence and aggression. However, mental health may also be affected by work related stress and exposure to traumatic events at work.

Conflict and bullying

Workplace conflict may occur when people's ideas, decisions or actions relating directly to the job are in opposition, or when two people just don't get along. Conflict in the workplace may be productive if it leads to positive change, but can also be stressful and unpleasant. Resolving disputes and clashes at work is important for employers and employees.

Bullying in the workplace may be described as repeated inappropriate behaviour that can occur at work and/or in the course of employment. It may be direct or indirect, verbal or physical, or some form of negative interaction between one or more persons against another or others. Bullying behaviour can be regarded as undermining an individual's right to dignity at work.

Violence and aggression

Aggression in the workplace can be defined as ‘any incident in which employees and other people are abused, threatened or assaulted at work’. Aggression in the workplace, in any form, is not part of the job. Aggression in the workplace is a hazard and employers must take reasonable, practical steps to protect employees.

There are two major ways of protecting and assisting people that experience aggression and violence in the workplace. The first is to ensure that the individual's personal security is protected and assured, and WA's Criminal Act can be applied for this purpose. The WA Police addresses such issues.

The second is to ensure safe systems have been applied at work to prevent and respond to intentional and unintentional aggression (eg. actions by a dementia patient), and WA's OSH Act may be applied for these purposes.

Work related stress and psychological trauma

Work-related stress is the response people may have when presented with work demands and pressures that are not matched to their knowledge and abilities and which challenge their ability to cope. Stress is not an injury or disease, however the experience of stress can lead to the development of psychological and physical injuries.

Antecedent →	Behavior ↔	Consequence
<i>A stimulus or event that occurs before a behaviour in time. This stimulus or event may result in the behaviour. Work examples include</i>	<i>Anything that we can see an individual do or</i>	<i>A stimulus or event that occurs after a behaviour in time. This consequence could increase or decrease behaviour in the future, depending on its reinforcing or punishing properties. Work examples include feedback,</i>

Despite the fact that we rely heavily on antecedents, it is consequences that have the greatest influence on behaviour.

INFLUENCING BEHAVIOUR CHANGE & IMPROVING HEALTH AND SAFETY

In the Health and Safety sector, the concept of behaviour change stems from the principle that no one should suffer injury during the course of their work. It is achieved by effective communication between all the people involved in carrying out an organisation's business, with an emphasis on reporting 'near-misses' in order to prevent more severe incidents and accidents.

Behaviour change is vitally important, so it is appropriate that everyone within an organisation should do all they can to improve health and safety performance.

Your role in improving health and safety performance

As the health and safety practitioner in your organisation, you don't just carry out procedures; you are responsible for devising and implementing them. With your knowledge and experience, you are ideally placed to take the lead in promoting a safety culture to influence behaviour change.

Everyone else will follow your example, so it's crucial that you get it right. Below are the main aspects of health and safety that it is necessary to understand when influencing behaviour change.

Legal duties

The Health and Safety at Work Act 1974 underpins everything, providing a standard and a framework for behaviour and best practices. Employers must ensure their employees' health and safety by providing a safe working environment with the appropriate systems and procedures, training and supervision, and equipment necessary for them to carry out their tasks.

Employees also have a duty to ensure their own, and others', health and safety. This is achieved by using equipment safely (when trained to do so), wearing appropriate protective clothing, and reporting any problems to their employer.

Since health and safety is your area of expertise, you should be fully aware of all the legal duties of employers and employees. You should also ensure that everyone else knows their duties.

Hazard, risk and control

As a health and safety practitioner, you possess considerable knowledge of hazards and risks. Electricity, working at height, and excessive noise are just three examples of hazards that might be encountered in the workplace.

Risk can be controlled. In a noisy working environment, for example, hearing protection should be worn. Electrical equipment should be safe and suitable for the task, and an RCD (residual current device) can reduce the possibility of injury.

Not all hazards cause accidents or incidents, though. Near-misses may also occur. These are unplanned events that do not cause injury but could do so. For example, a pallet might drop from a forklift truck and not cause any harm, but if someone had been close to it, they might have been injured.

Near-misses need to be reported because action can then be taken to remedy them and avoid accidents or more serious incidents, where the consequences could be medical treatment, time off work, or even death.

Causes of accidents

Accidents often occur because of unsafe acts, which lead to unsafe conditions. For example, when using a stepladder, it is an unsafe act to stand on the top step; doing so creates the unsafe condition of a dangerous working platform.

At the root of unsafe acts are human factors. A worker may lack training, experience, or appropriate supervision. They may be experiencing stress, whether because of pressure from colleagues or management, or anxiety from something in their personal life. They could also be simply careless, or even engaging in risky behaviour for some excitement.

Knowing about the causes of accidents enables you, as a health and safety practitioner, to combat the relevant behaviour and thereby reduce unsafe acts and conditions.

Attitude and behaviour

An organisation may have policies and procedures in place, but health and safety performance will not be acceptable if people are engaging in unsafe behaviour. How, then, do you motivate people to practise safe behaviour?

It is necessary to involve employees in every aspect of health and safety, and provide them with the appropriate training, working environment, and welfare facilities.

When employees are motivated, a positive attitude towards safe behaviour is fostered. Whereas starting off with an unsafe attitude will have a negative effect, beginning with a safe attitude means that a worker will stop and think before they begin their task and will assess what needs to be done. The task will then be carried out safely, resulting in a positive effect on the worker and their colleagues.

Key to motivation is effective communication. Information needs to be clear and given at the right time. Workers need to know that taking short cuts is unacceptable and that the consequences can be disastrous, but they also need to know that their managers will listen to what they have to say about their work and will not ignore any safety problems that they have identified. Employees will also respond well to praise, as well as advice that is delivered in a polite manner.

To keep themselves motivated and focused on their safety, people should use tools such as STAARR and TASK cards:

- STAARR stands for “Stop, Think, Assess, Act, Report, Review”
- TASK stands for “Think first, Act safe, Stop if hazardous, Keep safe”.

These tools prompt workers to assess risks before they begin a task. Instead of starting without regard for their safety, they are reminded to consider their environment and what they are about to do.

Getting it right

When employers and employees collaborate in carrying out work safely, accidents and incidents are reduced. This means that there is less chance of a company’s directors being severely punished, or having to pay compensation (and potentially a greater insurance premium) because of negligence. In short, safety is good for business.

As a health and safety professional, you can use your own experience to promote the right attitude and behaviour within your organisation.

Continuing professional development is essential to your practice, so why not expand your knowledge by taking a course on behaviour change? Such courses are offered by health and safety training providers, and although the content varies, all share core principles.

Through participating in discussions and role plays, you will be able to draw on your own experience, learn new techniques, and share information with your peers. Most importantly, you will achieve a greater understanding of the psychology of risk-taking, and of the strategies used to motivate people to engage in safer behaviour.

Safety Culture and Safety Results

We used to believe that there were certain “essential elements” of a “safety programme”. In the United States, regulatory agencies provide guidelines as to what those elements are (policy, procedures, training, inspections, investigations, etc.).

Upon close examination of the rationale behind the different lists of essential elements, it becomes obvious that the lists of each reflect merely the opinion of some writer from the past (Heinrich, say, or Bird). Similarly, regulations on safety programming often reflect the opinion of some early writer. T

here is seldom any research behind these opinions, resulting in situations where the essential elements may work in one organization and not in another. When we do actually look at the research on safety system effectiveness, we begin to understand that although there are many essential elements which are applicable to safety results, it is the worker’s perception of the culture that determines whether or not any single element will be effective. T

here are a number of studies cited in the references which lead to the conclusion that there are no “must haves” and no “essential” elements in a safety system.

This poses some serious problems since safety regulations tend to instruct organizations simply to “have a safety programme” that consists of five, seven, or any number of elements, when it is obvious that many of the prescribed activities will not work and will waste time, effort and resources which could be used to undertake the pro-active activities that will prevent loss.

It is not which elements are used that determines the safety results; rather it is the culture in which these elements are used that determines success. In a positive safety culture, almost any elements will work; in a negative culture, probably none of the elements will get results.

Building Culture

If the culture of the organization is so important, efforts in safety management ought to be aimed first and foremost at building culture in order that those safety activities which are instituted will get results. Culture can be loosely defined as “the way it is around here”. Safety culture is positive when the workers honestly believe that safety is a key value of the organization and can perceive that it is high on the list of organization priorities.

This perception by the workforce can be attained only when they see management as credible; when the words of safety policy are lived on a daily basis; when management’s decisions on financial expenditures show that money is spent for people (as well as to make more money); when the measures and rewards provided by management force mid-manager and supervisory performance to satisfactory levels; when workers have a role in problem solving and decision making; when there is a high degree of confidence and trust between management and the workers; when there is openness of communications; and when workers receive positive recognition for their work.

In a positive safety culture like that described above, almost any element of the safety system will be effective. In fact, with the right culture, an organization hardly even needs a “safety programme”, for safety is dealt with as a normal part of the management process. To achieve a positive safety culture, certain criteria must be met:

1. A system must be in place that ensures regular daily pro-active supervisory (or team) activities.
2. The system must actively ensure that middle-management tasks and activities are carried out in these areas:
 - ensuring subordinate (supervisory or team) regular performance
 - ensuring the quality of that performance
 - engaging in certain well-defined activities to show that safety is so important that even upper managers are doing something about it.
3. Top management must visibly demonstrate and support that safety has a high priority in the organization.
4. Any worker who chooses to should be able to be actively engaged in meaningful safety-related activities.
5. The safety system must be flexible, allowing choices to be made at all levels.
6. The safety effort must be seen as positive by the workforce.

These six criteria can be met regardless of the style of management of the organization, whether authoritarian or participative, and with completely different approaches to safety.

SAFETY CULTURE AND MANAGEMENT

Leadership and Safety

It is obvious from the above that leadership is crucial to safety results, as leadership forms the culture that determines what will and will not work in the organization's safety efforts. A good leader makes it clear what is wanted in terms of results, and also makes it clear exactly what will be done in the organization to achieve the results.

Leadership is infinitely more important than policy, for leaders, through their actions and decisions, send clear messages throughout the organization as to which policies are important and which are not. Organizations sometimes state via policy that health and safety are key values, and then construct measures and reward structures that promote the opposite.

Leadership, through its actions, systems, measures and rewards, clearly determines whether or not safety will be achieved in the organization. This has never been more apparent to every worker in industry than during the 1990s. There has never been more stated allegiance to health and safety than in the last ten years.

At the same time, there has never been more down-sizing or "right-sizing" and more pressure for production increases and cost reduction, creating more stress, more forced overtime, more work for fewer workers, more fear for the future and less job security than ever before. Right-sizing has decimated middle managers and supervisors and put more work on fewer workers (the key persons in safety).

There is a general perception of overload at all levels of the organization. Overload causes more accidents, more physical fatigue, more psychological fatigue, more stress claims, more repetitive motion conditions and more cumulative trauma disorder.

There has also been deterioration in many organizations of the relationship between the company and the worker, where there used to be mutual feelings of trust and security. In the former environment, a worker may have continued to "work hurt". However, when workers

fear for their jobs and they see that management ranks are so thin, they are non-supervised, they begin to feel as though the organization does not care for them any more, with the resultant deterioration in safety culture.

Safety Culture and Safety Performance

There is a growing body of empirical evidence concerning the impact of safety culture on safety performance. Numerous studies have investigated characteristics of companies having low accident rates, while generally comparing them with similar companies having higher-than-average accident rates.

A fairly consistent result of these studies, conducted in industrialized as well as in developing countries, emphasizes the importance of senior managers' safety commitment and leadership for safety performance (Chew 1988; Hunt and Habeck 1993; Shannon et al. 1992; Smith et al. 1978).

Moreover, most studies show that in companies with lower accident rates, the personal involvement of top managers in occupational safety is at least as important as their decisions in the structuring of the safety management system (functions that would include the use of financial and professional resources and the creation of policies and programmes, etc.).

According to Smith et al. (1978) active involvement of senior managers acts as a motivator for all levels of management by keeping up their interest through participation, and for employees by demonstrating management's commitment to their well-being.

Results of many studies suggest that one of the best ways of demonstrating and promoting its humanistic values and people-oriented philosophy is for senior management to participate in highly visible activities, such as workplace safety inspections and meetings with employees.

Numerous studies regarding the relationship between safety culture and safety performance pinpoint the safety behaviours of first-line supervisors by showing that supervisors' involvement in a participative approach to safety management is generally associated with lower accident rates (Chew 1988; Mattila, Hyttinen and Rantanen 1994; Simard and Marchand 1994; Smith et al. 1978).

Such a pattern of supervisors' behaviour is exemplified by frequent formal and informal interactions and communications with workers about work and safety, paying attention to monitoring workers' safety performance and giving positive feedback, as well as developing the involvement of workers in accident-prevention activities.

Moreover, the characteristics of effective safety supervision are the same as those for generally efficient supervision of operations and production, thereby supporting the hypothesis that there is a close connection between efficient safety management and good general management.

There is evidence that a safety-oriented workforce is a positive factor for the firm's safety performance. However, perception and conception of workers' safety behaviours should not be reduced to just carefulness and compliance with management safety rules, though numerous behavioural experiments have shown that a higher level of workers' conformity to safety practices reduces accident rates (Saari 1990).

Indeed, workforce empowerment and active involvement are also documented as factors of successful occupational safety programmes. At the workplace level, some studies offer evidence that effectively functioning joint health and safety committees (consisting of members who are well trained in occupational safety, cooperate in the pursuit of their mandate and are supported by their constituencies) significantly contribute to the firm's safety performance (Chew 1988; Rees 1988; Tuohy and Simard 1992).

Similarly, at the shop-floor level, work groups that are encouraged by management to develop team safety and self-regulation generally have a better safety performance than work groups subject to authoritarianism and social disintegration (Dwyer 1992; Lanier 1992).

Safety mission refers to the priority given to occupational safety in the firm's mission. Literature on organizational culture stresses the importance of an explicit and shared definition of a mission that grows out of and supports the key values of the organization (Denison 1990).



Consequently, the safety mission dimension reflects the degree to which occupational safety and health are acknowledged by top management as a key value of the firm, and the degree to which upper-level managers use their leadership to promote the internalization of this value in management systems and practices.

It can then be hypothesized that a strong sense of safety mission (+) impacts positively on safety performance because it motivates individual members of the workplace to adopt goal-directed behaviour regarding safety at work, and facilitates coordination by defining a common goal as well as an external criterion for orienting behaviour.

Safety involvement is where supervisors and employees join together to develop team safety at the shop-floor level. Literature on organizational culture supports the argument that high levels of involvement and participation contribute to performance because they create among organizational members a sense of ownership and responsibility leading to a greater voluntary commitment that facilitates the coordination of behaviour and reduces the necessity of explicit bureaucratic control systems (Denison 1990).

Moreover, some studies show that involvement can be a managers' strategy for effective performance as well as a workers' strategy for a better work environment (Lawler 1986; Walton 1986).

Figure 59.2 Typology of safety cultures

SAFETY INVOLVEMENT 	SAFETY MISSION 	
	−	+
−	Injury claims culture A	Bureaucratic safety culture B
+	Self-regulation safety culture C	Integrated safety culture D

The Management of an Integrated Safety Culture

Managing an integrated safety culture first requires the senior management's will to build it into the organizational culture of the firm. This is no simple task. It goes far beyond adopting an official corporate policy emphasizing the key value and priority given to occupational safety and to the philosophy of its management, although indeed the integration of safety at work in the organization's core values is a cornerstone in the building of an integrated safety culture.

Indeed, top management should be conscious that such a policy is the starting point of a major organizational change process, since most organizations are not yet functioning according to an integrated safety culture. Of course, the details of the change strategy will vary depending on what the workplace's existing safety culture already is.

In any case, one of the key issues is for the top management to behave congruently with such a policy (in other words to practice what it preaches). This is part of the personal leadership top managers should demonstrate in implementing and enforcing such a policy.

Another key issue is for senior management to facilitate the structuring or restructuring of various formal management systems so as to support the building of an integrated safety culture. For example, if the existing safety culture is a bureaucratic one, the role of the safety staff and joint health and safety committee should be reoriented in such a way as to support the development of supervisors' and work teams' safety involvement.

In the same way, the performance evaluation system should be adapted so as to acknowledge lower-level managers' accountability and the performance of work groups in occupational safety.

Lower-level managers, and particularly supervisors, also play a critical role in the management of an integrated safety culture. More specifically, they should be accountable for the safety performance of their work teams and they should encourage workers to get actively involved in occupational safety.

According to Petersen (1993), most lower-level managers tend to be cynical about safety because they are confronted with the reality of upper management's mixed messages as well as the promotion of various programmes that come and go with little lasting impact. Therefore, building an integrated safety culture often may require a change in the supervisors' pattern of safety behaviour.

- 1) According to a recent study by Simard and Marchand (1995), a systematic approach to supervisors' behaviour change is the most efficient strategy to effect change. Such an approach consists of coherent, active steps aimed at solving three major problems of the change process: (1) the resistance of individuals to change,
- 2) (2) the adaptation of existing management formal systems so as to support the change process and
- 3) (3) the shaping of the informal political and cultural dynamics of the organization. The latter two problems may be addressed by upper managers' personal and structural leadership, as mentioned in the preceding paragraph. However, in unionized workplaces, this leadership should shape the organization's political dynamics so as to create a consensus with union leaders regarding the development of participative safety management at the shop-floor level.

As for the problem of supervisors' resistance to change, it should not be managed by a command-and-control approach, but by a consultative approach which helps supervisors participate in the change process and develop a sense of ownership.

Techniques such as the focus group and ad hoc committee, which allow supervisors and work teams to express their concerns about safety management and to engage in a problem-solving process, are frequently used, combined with appropriate training of supervisors in participative and effective supervisory management.

It is not easy to conceive a truly integrated safety culture in a workplace that has no joint health and safety committee or worker safety delegate. However, many industrialized and some developing countries now have laws and regulations that encourage or mandate workplaces to establish such committees and delegates.

The risk is that these committees and delegates may become mere substitutes for real employee involvement and empowerment in occupational safety at the shop-floor level, thereby serving to reinforce a bureaucratic safety culture. In order to support the development of an integrated safety culture, joint committees and delegates should foster a decentralized and participative safety management approach, for example by

- 1) organizing activities that raise employees' consciousness of workplace hazards and risk-taking behaviours,
- 2) designing procedures and training programmes that empower supervisors and work teams to solve many safety problems at the shop-floor level,
- 3) participating in the workplace's safety performance appraisal and
- 4) giving reinforcing feedback to supervisors and workers.

Another powerful means of promoting an integrated safety culture among employees is to conduct a perception survey. Workers generally know where many of the safety problems are, but since no one asks them their opinion, they resist getting involved in the safety programme. An anonymous perception survey is a means to break this stalemate and promote employees' safety involvement while providing senior management with feedback that can be used to improve the safety programme's management.

Such a survey can be done using an interview method combined with a questionnaire administered to all or to a statistically valid sample of employees (Bailey 1993; Petersen 1993). The survey follow-up is crucial for building an integrated safety culture. Once the data are available, top management should proceed with the change process by creating ad hoc work groups with participation from every echelon of the organization, including workers.

This will provide for more in-depth diagnoses of problems identified in the survey and will recommend ways of improving aspects of the safety management that need it. Such a perception survey may be repeated every year or two, in order to periodically assess the improvement of their safety management system and culture.

Leadership and Safety Climate

To make things happen that enable the company to evolve toward new cultural assumptions, management has to be willing to go beyond "commitment" to participatory leadership (Hansen 1993a). The workplace thus needs leaders with vision, empowerment skills and a willingness to cause change.

Safety climate is created by the actions of leaders. This means fostering a climate where working safely is esteemed, inviting all employees to think beyond their own particular jobs, to take care of themselves and their co-workers, propagating and cultivating leadership in safety (Lark 1991).

To induce this climate, leaders need perception and insight, motivation and skill to communicate dedication or commitment to the group beyond self-interest, emotional strength, ability to induce “cognition redefinition” by articulating and selling new visions and concepts, ability to create involvement and participation, and depth of vision (Schein 1989). To change any elements of the organization, leaders must be willing to “unfreeze” (Lewin 1951) their own organization.

According to Lark (1991), leadership in safety means at the executive level, creating an overall climate in which safety is a value and in which supervisors and non-supervisors conscientiously and in turn take the lead in hazard control.

These executive leaders publish a safety policy in which they: affirm the value of each employee and of the group, and their own commitment to safety; relate safety to the continuance of the company and the achievement of its objectives; express their expectations that each individual will be responsible for safety and take an active part in keeping the workplace healthy and safe; appoint a safety representative in writing and empower this individual to execute corporate safety policy.

Supervisor leaders expect safe behaviour from subordinates and directly involve them in the identification of problems and their solutions. Leadership in safety for the non-supervisor means reporting deficiencies, seeing corrective actions as a challenge, and working to correct these deficiencies.

Leadership challenges and empowers people to lead in their own right. At the core of this notion of empowerment is the concept of power, defined as the ability to control the factors that determine one’s life. The new health promotion movement, however, attempts to reframe power not as “power over” but rather as “power to” or as “power with” (Robertson and Minkler 1994).

Behaviour Modification: A Safety Management Technique

Safety management has two main tasks. It is incumbent on the safety organization (1) to maintain the company’s safety performance on the current level and (2) to implement measures and programmes which improve the safety performance.

The tasks are different and require different approaches. This article describes a method for the second task which has been used in numerous companies with excellent results.

The background of this method is behaviour modification, which is a technique for improving safety which has many applications in business and industry. Two independently conducted experiments of the first scientific applications of behaviour modification were published by Americans in 1978.

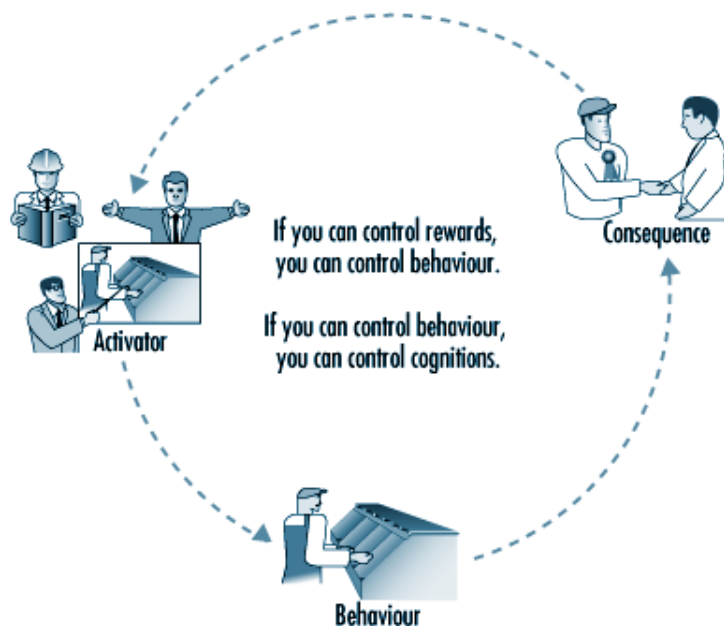
The applications were in quite different locations. Komaki, Barwick and Scott (1978) did their study in a bakery. Sulzer-Azaroff (1978) did her study in laboratories at a university.

Consequences of Behaviour

Behaviour modification puts the focus on the consequences of a behaviour. When workers have several behaviours to opt for, they choose the one which will be expected to bring about more positive consequences. Before action, the worker has a set of attitudes, skills, equipment and facility conditions.

These have an influence on the choice of action. However, it is primarily what follows the action as foreseeable consequences that determines the choice of behaviour. Because the consequences have an effect on attitudes, skills and so on, they have the predominant role in inducing a change in behaviour, according to the theorists.

Figure 59.3 Behaviour modification: a safety management technique



In behaviour modification, one assumes that the expected consequences of behaviour determine the choice between behavioural options

The problem in the safety area is that many unsafe behaviours lead workers to choose more positive consequences (in the sense of apparently rewarding the worker) than safe behaviours. An unsafe work method may be more rewarding if it is quicker, perhaps easier, and induces appreciation from the supervisor.

The negative consequence—for instance, an injury—does not follow each unsafe behaviour, as injuries require other adverse conditions to exist before they can take place. Therefore positive consequences are overwhelming in their number and frequency.

This little incident illustrates well how the expected consequences affect our decisions. The operator wants to do the job fast and avoid lifting a part that is heavy and difficult to handle. Even if this is more risky, the operator rejects the safer method. The same mechanism applies to all levels in organizations.

A plant manager, for example, likes to maximize the profit of the operation and be rewarded for good economic results. If top management does not pay attention to safety, the plant manager can expect more positive consequences from investments which maximize production than those which improve safety.

Positive and Negative Consequences

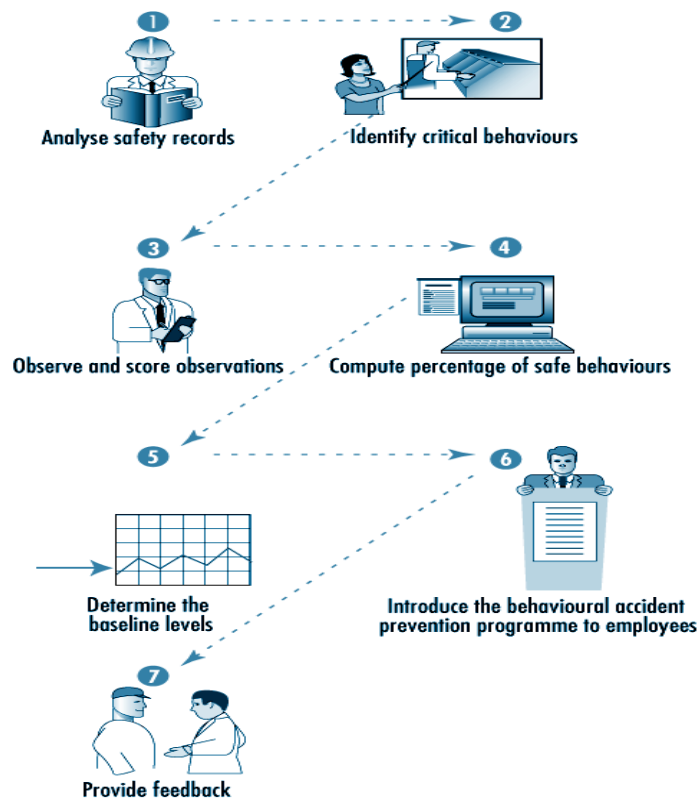
Governments give rules to economic decision makers through laws, and enforce the laws with penalties. The mechanism is direct: any decision maker can expect negative consequences for breach of law. The difference between the legal approach and the approach advocated here is in the type of consequences.

Law enforcement uses negative consequences for unsafe behaviour, while behaviour modification techniques use positive consequences for safe behaviour. Negative consequences have their drawbacks even if they are effective. In the area of safety, the use of negative consequences has been common, extending from government penalties to supervisor's reprimand. People try to avoid penalties. By doing it, they easily associate safety with penalties, as something less desirable.

Positive consequences reinforcing safe behaviour are more desirable, as they associate positive feelings with safety. If operators can expect more positive consequences from safe work methods, they choose this more as a likely role of behaviour. If plant managers are appraised and rewarded on the basis of safety, they will most likely give a higher value to safety aspects in their decisions.

The array of possible positive consequences is wide. They extend from social attention to various privileges and tokens. Some of the consequences can easily be attached to behaviour; some others demand administrative actions which may be overwhelming. Fortunately, just the chance of being rewarded can change performance.

Changing Unsafe Behaviour to Safe Behaviour



A few other examples of typical safe behaviours are:

1. In working on a ladder, it should be tied off.

2. In working on a catwalk, one should not lean over the railing.
3. Lockouts should be used during electrical maintenance.
4. Protective equipment should be worn.
5. A fork-lift should be driven up or down a ramp with the boom in its proper position (Krause, Hidley and Hodgson 1990; McSween 1995).

If a sufficient number of people, typically from 5 to 30, work in a given area, it is possible to generate an observation checklist based on unsafe behaviours. The main principle is to choose checklist items which have only two values, correct or incorrect. If wearing safety glasses is one of the specified safe acts, it would be appropriate to observe every person separately and determine whether or not they are wearing safety glasses.

This way the observations provide objective and clear data about the prevalence of safe behaviour. Other specified safe behaviours provide other items for inclusion in the observation checklist. If the list consists, for example, of one hundred items, it is easy to calculate a safety performance index of the percentage of those items which are marked correct, after the observation is completed. The performance index usually varies from time to time.

When the measurement technique is ready, the users determine the baseline. Observation rounds are done at random times weekly (or for several weeks). When a sufficient number of observation rounds are done there is a reasonable picture of the variations of the baseline performance.

This is necessary for the positive mechanisms to work. The baseline should be around 50 to 60% to give a positive starting point for improvement and to acknowledge previous performance. The technique has proven its effectiveness in changing safety behaviour. Sulzer-Azaroff, Harris and McCann (1994) list in their review 44 published studies showing a definite effect on behaviour. The technique seems to work almost always, with a few exceptions, as mentioned in Cooper et al. 1994.

Practical Application of Behavioural Theory

Because of several drawbacks in behaviour modification, we developed another technique which aims at rectifying some of the drawbacks. The new programme is called Tuttava, which is an acronym for the Finnish words safely productive.

Table 59.2 Differences between Tuttava and other programme/techniques

Aspect	Behaviour modification for safety	Participatory workplace improvement process, Tuttava
Basis	Accidents, incidents, risk perceptions	Work analysis, work flow
Focus	People and their behaviour	Conditions
Implementation	Experts, consultants	Joint employee-management team
Effect	Temporary	Sustainable
Goal	Behavioural change	Fundamental and cultural change

The underlying safety theory in behavioural safety programmes is very simple. It assumes that there is a clear line between safe and unsafe. Wearing safety glasses represents safe behaviour. It does not matter that the optical quality of the glasses may be poor or that the field of vision may be reduced. More generally, the dichotomy between safe and unsafe may be a dangerous simplification.

The receptionist at a plant asked me to remove my ring for a plant tour. She committed a safe act by asking me to remove my ring, and I, by doing so. The wedding ring has, however, a high emotional value to me. Therefore I was worried about losing my ring during the tour. This took part of my perceptual and mental energy away from observing the surrounding area. I was less observant and therefore my risk of being hit by a passing fork-lift truck was higher than usual.

The “no rings” policy originated probably from a past accident. Similar to the wearing of safety glasses, it is far from clear that it itself represents safety. Accident investigations, and people concerned, are the most natural source for the identification of unsafe acts. But this may be very misleading. The investigator may not really understand how an act contributed to the injury under investigation.

Therefore, an act labelled “unsafe” may not really be generally speaking unsafe. For this reason, the application developed herein (Saari and Näsänen 1989) defines the behavioural targets from a work analysis point of view. The focus is on tools and materials, because the workers handle those every day and it is easy for them to start talking about familiar objects.

Observing people by direct methods leads easily to blame. Blame leads to organizational tension and antagonism between management and labour, and it is not beneficial for continuous safety improvements. It is therefore better to focus on physical conditions rather than try to coerce behaviour directly.

Targeting the application to behaviours related to handling materials and tools, will make any relevant change highly visible. The behaviour itself may last only a second, but it has to leave a visible mark. For example, putting a tool back in its designated place after use takes a very short time. The tool itself remains visible and observable, and there is no need to observe the behaviour itself.

The visible change provides two benefits: (1) it becomes obvious to everybody that improvements happen and (2) people learn to read their performance level directly from their environment. They do not need the results of observation rounds in order to know their current performance. This way, the improvements start acting as positive consequences with respect to correct behaviour, and the artificial performance index becomes unnecessary.

The researchers and external consultants are the main actors in the application described previously. The workers need not think about their work; it is enough if they change their behaviour. However, for obtaining deeper and more lasting results, it would be better if they were involved in the process.

Therefore, the application should integrate both workers and management, so that the implementation team consists of representatives from both sides. It also would be nice to have an application which gives lasting results without continuous measurements. Unfortunately, the normal behaviour modification programme does not create highly visible changes, and many critical behaviours last only a second or fractions of a second.

The technique does have some drawbacks in the form described. In theory, relapse to baseline should occur when the observation rounds are terminated. The resources for developing the programme and carrying out observation may be too extensive in comparison with the temporary change gained.

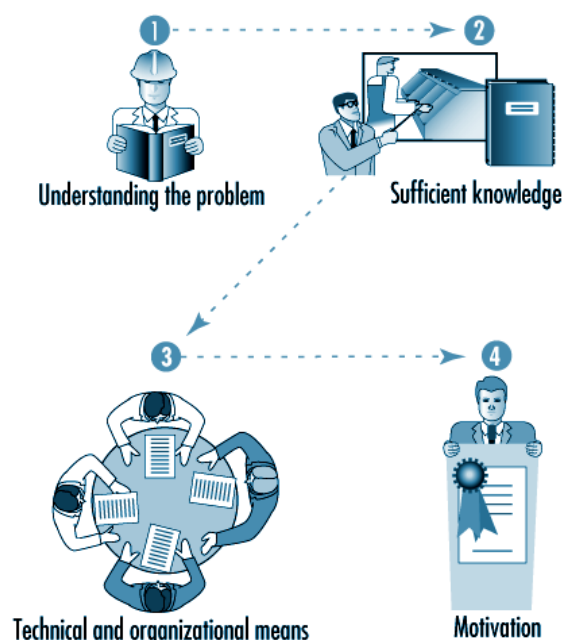
Tools and materials provide a sort of window into the quality of the functions of an organization. For example, if too many components or parts clutter a workstation it may be an indication about problems in the firm's purchasing process or in the suppliers' procedures. The physical presence of excessive parts is a concrete way of initiating discussion about organizational functions.

The workers who are especially not used to abstract discussions about organizations, can participate and bring their observations into the analysis. Tools and materials often provide an avenue to the underlying, more hidden factors contributing to accident risks. These factors are typically organizational and procedural by nature and, therefore, difficult to address without concrete and substantive informational matter.

Organizational malfunctions may also cause safety problems. For example, in a recent plant visit, workers were observed lifting products manually onto pallets weighing several tons all together. This happened because the purchasing system and the supplier's system did not function well and, consequently, the product labels were not available at the right time.

The products had to be set aside for days on pallets, obstructing an aisle. When the labels arrived, the products were lifted, again manually, to the line. All this was extra work, work which contributes to the risk of back or other injury.

Figure 59.5 The four steps of a successful safety programme



A safety campaign may be a good instrument for efficiently spreading information about a goal. However, it has an effect on people's behaviour only if the other criteria are satisfied. Requiring the wearing of hard hats has no effect on a person who does not have a hard hat, or if a hard hat is terribly uncomfortable, for example, because of a cold climate.

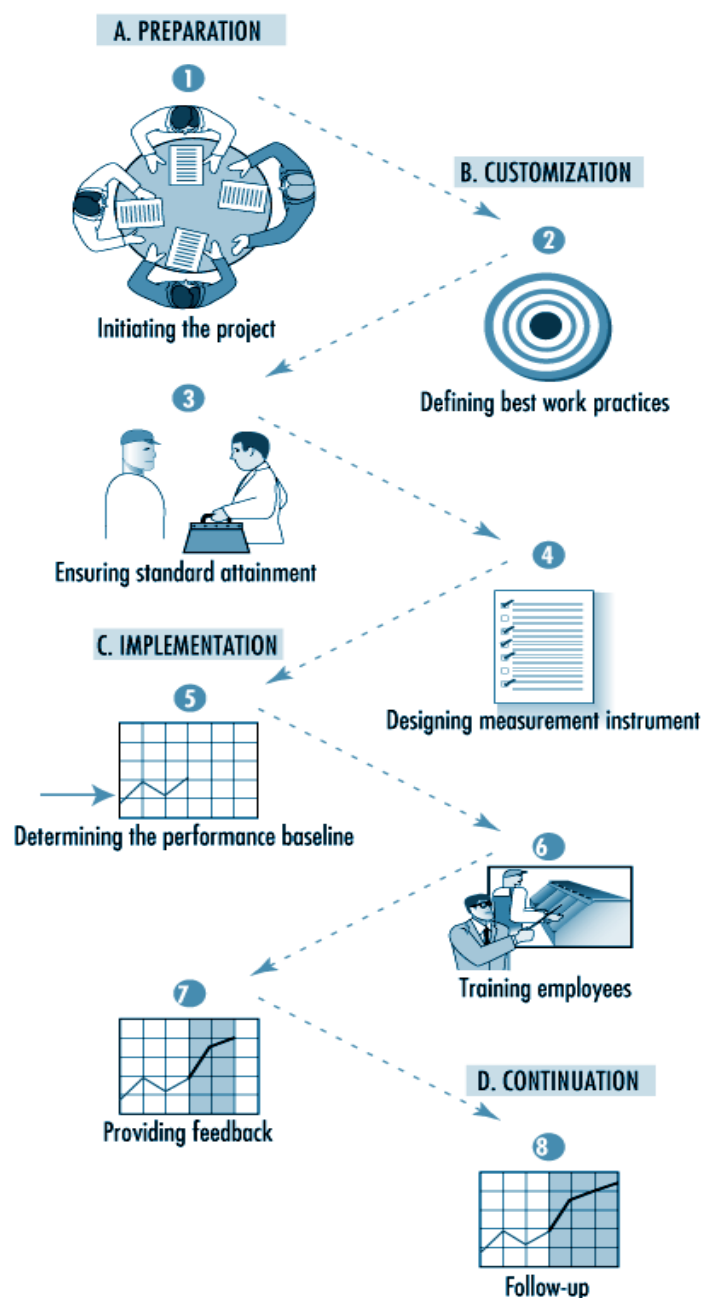
A safety campaign may also aim at increasing motivation, but it will fail if it just sends an abstract message, such as "safety first", unless the recipients have the skills to translate the

message into specific behaviours. Plant managers who are told to reduce injuries in the area by 50% are in a similar situation if they do not understand anything about accident mechanisms.

The four criteria set out in [figure 59.5](#) have to be met. For example, an experiment was conducted in which people were supposed to use stand-alone screens to prevent welding light from reaching other workers' areas. The experiment failed because it was not realized that no adequate organizational agreements were made. Who should put the screen up, the welder or the other nearby worker exposed to the light?

Because both worked on a piece-rate basis and did not want to waste time, an organizational agreement about compensation should have been made before the experiment. A successful safety programme has to address all these four areas simultaneously. Otherwise, progress will be limited.

Figure 59.6 The Tuttava programme consists of four stages and eight steps



Performance targets

The first step is to prepare a list of performance targets, or best work practices, consisting of about ten well-specified targets ([table 59.3](#)). The targets should be (1) positive and make work easier, (2) generally acceptable, (3) simple and briefly stated, (4) expressed at the start with action verbs to emphasize the important items to be done and (5) easy to observe and measure.

Table 59.3 An example of best work practices

- Keep gangways, aisles clear.
- Keep tools stored in proper places when not in use.
- Use proper containers and disposal methods for chemicals.
- Store all manuals at right place after use.
- Make sure of the right calibration on measuring instruments.
- Return trolleys, buggies, pallets at proper location after use.
- Take only right quantity of parts (bolts, nuts, etc.) from bins and return any unused items back in proper place.
- Remove from pockets any loose objects that may fall without notice.

The key words for specifying the targets are tools and materials. Usually the targets refer to goals such as the proper placement of materials and tools, keeping the aisles open, correcting leaks and other process disturbances right away, and keeping free access to fire extinguishers, emergency exits, electric substations, safety switches and so on.

The performance targets at a printing ink factory are given in [table 59.4](#).

Table 59.4 Performance targets at a printing ink factory

- Keep aisles open.
- Always put covers on containers when possible.
- Close bottles after use.
- Clean and return tools after use.
- Ground containers when moving flammable substances.
- Use personal protection as specified.
- Use local exhaust ventilation.
- Store in working areas only materials and substances needed immediately.
- Use only the designated fork-lift truck in the department making flexographic printing inks.
- Label all containers.

These targets are comparable to the safe behaviours defined in the behaviour modification programmes. The difference is that Tutava behaviours leave visible marks. Closing bottles after use may be a behaviour which takes less than a minute. However, it is possible to see if this was done or not by observing the bottles not in use. There is no need to observe people, a fact which is important for avoiding fingerpointing and blame.

The targets define the behavioural change that the team expects from the employees. In this sense, they compare with the safe behaviours in behaviour modification. However, most of the targets refer to things which are not only workers' behaviours but which have a much wider

meaning. For example, the target may be to store only immediately needed materials in the work area.

This requires an analysis of the work process and an understanding of it, and may reveal problems in the technical and organizational arrangements. Sometimes, the materials are not stored conveniently for daily use. Sometimes, the delivery systems work so slowly or are so vulnerable to disturbances that employees stockpile too much material in the work area.

Observation checklist

When the performance targets are sufficiently well defined, the team designs an observation checklist to measure to what extent the targets are met. About 100 measurement points are chosen from the area. For example, the number of measurement points was 126 in the printing ink factory. In each point, the team observes one or several specific items.

For example, as regards a waste container, the items could be

- is the container not too full,
- is the right kind of waste put into it or
- is the cover on, if needed?

Each item can only be either correct or incorrect. Dichotomized observations make the measurement system objective and reliable. This allows one to calculate a performance index after an observation round covering all measurement points. The index is simply the percentage of items assessed correct.

The index can, quite obviously, range from 0 to 100, and it indicates directly to what degree the standards are met. When the first draft of the observation checklist is available, the team conducts a test round. If the result is around 50 to 60%, and if each member of the team gets about the same result, the team can move on to the next phase of *Tuttava*. If the result of the first observation round is too low—say, 20%—then the team revises the list of performance targets.

This is because the programme should be positive in every aspect. Too low a baseline would not adequately assess previous performance; it would rather merely set the blame for poor performance. A good baseline is around 50%.

Technical, organizational and procedural improvements

A very important step in the programme is ensuring the attainment of the performance targets. For example, waste may be lying on floors simply because the number of waste containers is insufficient. There may be excessive materials and parts because the supply system does not work. The system has to become better before it is correct to demand a behavioural change from the workers.

By examining each of the targets for attainability, the team usually identifies many opportunities for technical, organizational and procedural improvements. In this way, the worker members bring their practical experience into the development process.

Because the workers spend the entire day at their workplace, they have much more knowledge about the work processes than management. Analysing the attainment of the performance targets, the workers get the opportunity to communicate their ideas to management. As

improvements then take place, the employees are much more receptive to the request to meet the performance targets.

Usually, this step leads to easily manageable corrective actions. For example, products were removed from the line for adjustments. Some of the products were good, some were bad. The production workers wanted to have designated areas marked for good and bad products so as to know which products to put back on the line and which ones to send for recycling.

This step may also call for major technical modifications, such as a new ventilation system in the area where the rejected products are stored. Sometimes, the number of modifications is very high. For example, over 300 technical improvements were made in a plant producing oil-based chemicals which employs only 60 workers. It is important to manage the implementation of improvements well to avoid frustration and the overloading of the respective departments.

Baseline measurements

Baseline observations are started when the attainment of performance targets is sufficiently ensured and when the observation checklist is reliable enough. Sometimes, the targets need revisions, as improvements take a longer time. The team conducts weekly observation rounds for a few weeks to determine the prevailing standard.

This phase is important, because it makes it possible to compare the performance at any later time to the initial performance. People forget easily how things were just a couple of months in the past. It is important to have the feeling of progress to reinforce continuous improvements.

Feedback

As the next step, the team trains all people in the area. It is usually done in a one-hour seminar. This is the first time when the results of the baseline measurements are made generally known. The feedback phase starts immediately after the seminar. The observation rounds continue weekly. Now, the result of the round is immediately made known to everybody by posting the index on a chart placed in a visible location. All critical remarks, blame or other negative comments are strictly forbidden. Although the team will identify individuals not behaving as specified in the targets, the team is instructed to keep the information to themselves.

Sometimes, all employees are integrated into the process from the very beginning, especially if the number of people working in the area is small. This is better than having representative implementation teams. However, it may not be feasible everywhere.

Sustainable results

When the programme was first developed, 12 experiments were conducted to test the various components. Follow-up observations were made at a shipyard for 2 years. The new level of performance was well kept up during the 2-year follow-up. The sustainable results separate this process from normal behaviour modification.

The visible changes in the location of materials, tools and so on, and the technical improvements deter the already secured improvement from fading away. When 3 years had gone by, an evaluation of the effect on accidents at the shipyard was made. The result was dramatic. Accidents had gone down by from 70 to 80%. This was much more than could be expected on the basis of the behavioural change. The number of accidents totally unrelated to performance targets went down as well.

The major effect on accidents is not attributable to the direct changes the process achieves. Rather, this is a starting point for other processes to follow. As Tuttava is very positive and as it brings noticeable improvements, the relations between management and labour get better and the teams get encouragement for other improvements.

Cultural change

A large steel mill was one of the numerous users of Tuttava, the primary purpose of which is to change safety culture. When they started in 1987 there were 57 accidents per million hours worked. Prior to this, safety management relied heavily on commands from the top. Unfortunately, the president retired and everybody forgot safety, as the new management could not create a similar demand for safety culture.

Among middle management, safety was considered negatively as something extra to be done because of the president's demand. They organized ten Tuttava teams in 1987, and new teams were added every year after that.

Now, they have less than 35 accidents per million hours worked, and production has steadily increased during these years. The process caused the safety culture to improve as the middle managers saw in their respective departments improvements which were simultaneously good for safety and production. They became more receptive to other safety programmes and initiatives.

The practical benefits were big. For example, the maintenance service department of the steel mill, employing 300 people, reported a reduction of 400 days in the number of days lost due to occupational injuries—in other words, from 600 days to 200 days.

The absenteeism rate fell also by one percentage point. The supervisors said that “it is nicer to come to a workplace which is well organized, both materially and mentally”. The investment was just a fraction of the economic benefit.

Another company employing 1,500 people reported the release of 15,000 m² of production area, since materials, equipment and so forth, are stored in a better order. The company paid US\$1.5 million less in rent. A Canadian company saves about 1 million Canadian dollars per year because of reduced material damages resulting from the implementation of Tuttava.

These are results which are possible only through a cultural change. The most important element in the new culture is shared positive experiences. A manager said, “You can buy people's time, you can buy their physical presence at a given place, you can even buy a measured number of their skilled muscular motions per hour.

But you cannot buy loyalty, you cannot buy the devotion of hearts, minds, or souls. You must earn them.” The positive approach of Tuttava helps managers to earn the loyalty and the devotion of their working teams. Thereby the programme helps involve employees in subsequent improvement projects.

METHODS OF SAFETY DECISION MAKING

A company is a complex system where decision making takes place in many connections and under various circumstances. Safety is only one of a number of requirements managers must consider when choosing among actions. Decisions relating to safety issues vary considerably in

scope and character depending on the attributes of the risk problems to be managed and the decision maker's position in the organization.

Much research has been undertaken on how people actually make decisions, both individually and in an organizational context: see, for instance, Janis and Mann (1977); Kahnemann, Slovic and Tversky (1982); Montgomery and Svenson (1989).

This article will examine selected research experience in this area as a basis for decision-making methods used in management of safety. In principle, decision making concerning safety is not much different from decision making in other areas of management. There is no simple method or set of rules for making good decisions in all situations, since the activities involved in safety management are too complex and varied in scope and character.

The main focus of this article will not be on presenting simple prescriptions or solutions but rather to provide more insight into some of the important challenges and principles for good decision making concerning safety. An overview of the scope, levels and steps in problem solving concerning safety issues will be given, mainly based on the work by Hale et al. (1994). Problem solving is a way of identifying the problem and eliciting viable remedies.

This is an important first step in any decision process to be examined. In order to put the challenges of real-life decisions concerning safety into perspective, the principles of rational choice theory will be discussed. The last part of the article covers decision making in an organizational context and introduces the sociological perspective on decision making.

Also included are some of the main problems and methods of decision making in the context of safety management, so as to provide more insight into the main dimensions, challenges and pitfalls of making decisions on safety issues as an important activity and challenge in management of safety.

The Context of Safety Decision Making

A general presentation of the methods of safety decision making is complicated because both safety issues and the character of the decision problems vary considerably over the lifetime of an enterprise. From concept and establishment to closure, the life cycle of a company may be divided into six main stages:

1. design
2. construction
3. commissioning
4. operation
5. maintenance and modification
6. decomposition and demolition.

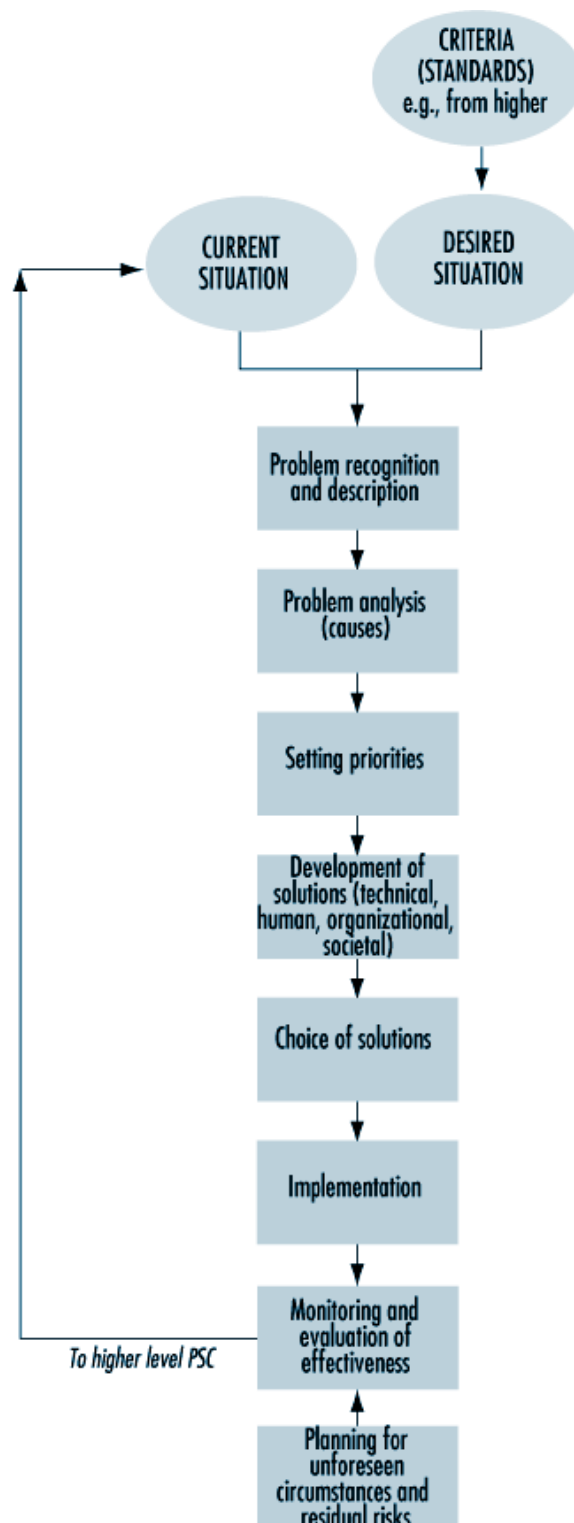
Each of the life-cycle elements involves decisions concerning safety which are not only specific to that phase alone but which also impact on some or all of the other phases. During design, construction and commissioning, the main challenges concern the choice, development and realization of the safety standards and specifications that have been decided upon.

During operation, maintenance and demolition, the main objectives of safety management will be to maintain and possibly improve the determined level of safety. The construction phase also represents a "production phase" to some extent, because at the same time that

construction safety principles must be adhered to, the safety specifications for what is being built must be realized.

Safety Decision-Making Process

Safety problems must be managed through some kind of problem-solving or decision-making process. According to Hale et al. (1994) this process, which is designated the problem-solving cycle, is common to the three levels of safety management described above. The problem-solving cycle is a model of an idealized stepwise procedure for analysing and making decisions on safety problems caused by potential or actual deviations from desired, expected or planned achievements ([figure 59.8](#)).



Source: Adapted from Hale et al. 1994.

Although the steps are the same in principle at all three safety management levels, the application in practice may differ somewhat depending on the nature of problems treated. The model shows that decisions which concern safety management span many types of problems. In practice, each of the following six basic decision problems in safety management will have to be broken down into several subdecisions which will form the basis for choices on each of the main problem areas.

- 1) What is an acceptable safety level or standard of the activity/department/company, etc.?
- 2) What criteria shall be used to assess the safety level?
- 3) What is the current safety level?
- 4) What are the causes of identified deviations between acceptable and observed level of safety?
- 5) What means should be chosen to correct the deviations and keep up the safety level?
- 6) How should corrective actions be implemented and followed up?

Rational Choice Theory

Managers' methods for making decisions must be based on some principle of rationality in order to gain acceptance among members of the organization. In practical situations what is rational may not always be easy to define, and the logical requirements of what may be defined as rational decisions may be difficult to fulfil.

Rational choice theory (RCT), the conception of rational decision making, was originally developed to explain economic behaviour in the marketplace, and later generalized to explain not only economic behaviour but also the behaviour studied by nearly all social science disciplines, from political philosophy to psychology.

The psychological study of optimal human decision making is called subjective expected utility theory (SEU). RCT and SEU are basically the same; only the applications differ. SEU focuses on the thinking of individual decision making, while RCT has a wider application in explaining behaviour within whole organizations or institutions—see, for example, Neumann and Politser (1992).

Most of the tools of modern operations research use the assumptions of SEU. They assume that what is desired is to maximize the achievement of some goal, under specific constraints, and assuming that all alternatives and consequences (or their probability distribution) are known (Simon and associates 1992). The essence of RCT and SEU can be summarized as follows (March and Simon 1993):

Decision makers, when encountering a decision-making situation, acquire and see the whole set of alternatives from which they will choose their action. This set is simply given; the theory does not tell how it is obtained.

To each alternative is attached a set of consequences—the events that will ensue if that particular alternative is chosen. Here the existing theories fall into three categories:

- Certainty theories assume the decision maker has complete and accurate knowledge of the consequences that will follow on each alternative. In the case of certainty, the choice is unambiguous.
- Risk theories assume accurate knowledge of a probability distribution of the consequences of each alternative. In the case of risk, rationality is usually defined as the choice of that alternative for which expected utility is greatest.

- Uncertainty theories assume that the consequences of each alternative belong to some subset of all possible consequences, but that the decision maker cannot assign definite probabilities to the occurrence of particular consequences. In the case of uncertainty, the definition of rationality becomes problematic.

At the outset, the decision maker makes use of a “utility function” or a “preference ordering” that ranks all sets of consequences from the most preferred to the least preferred. It should be noted that another proposal is the rule of “minimax risk”, by which one considers the “worst set of consequences” that may follow from each alternative, then selects the alternative whose worst set of consequences is preferred to the worst sets attached to other alternatives.

The decision maker elects the alternative closest to the preferred set of consequences. One difficulty of RCT is that the term rationality is in itself problematic. What is rational depends upon the social context in which the decision takes place.

As pointed out by Flanagan (1991), it is important to distinguish between the two terms rationality and logicity. Rationality is tied up with issues related to the meaning and quality of life for some individual or individuals, while logicity is not. The problem of the benefactor is precisely the issue which rational choice models fail to clarify, in that they assume value neutrality, which is seldom present in real-life decision making (Zey 1992).

Although the value of RCT and SEU as explanatory theory is somewhat limited, it has been useful as a theoretical model for “rational” decision making. Evidence that behaviour often deviates from outcomes predicted by expected utility theory does not necessarily mean that the theory inappropriately prescribes how people should make decisions. As a normative model the theory has proven useful in generating research concerning how and why people make decisions which violate the optimal utility axiom.

Applying the ideas of RCT and SEU to safety decision making may provide a basis for evaluating the “rationality” of choices made with respect to safety—for instance, in the selection of preventive measures given a safety problem one wants to alleviate. Quite often it will not be possible to comply with the principles of rational choice because of lack of reliable data.

Either one may not have a complete picture of available or possible actions, or else the uncertainty of the effects of different actions, for instance, implementation of different preventive measures, may be large. Thus, RCT may be helpful in pointing out some weaknesses in a decision process, but it provides little guidance in improving the quality of choices to be made. Another limitation in the applicability of rational choice models is that most decisions in organizations do not necessarily search for optimal solutions.

Problem Solving

Rational choice models describe the process of evaluating and choosing between alternatives. However, deciding on a course of action also requires what Simon and associates (1992) describe as problem solving. This is the work of choosing issues that require attention, setting goals, and finding or deciding on suitable courses of action. (While managers may know they have problems, they may not understand the situation well enough to direct their attention to any plausible course of action.)

As mentioned earlier, the theory of rational choice has its roots mainly in economics, statistics and operations research, and only recently has it received attention from psychologists. The theory and methods of problem solving has a very different history. Problem solving was

initially studied principally by psychologists, and more recently by researchers in artificial intelligence.

Empirical research has shown that the process of problem solving takes place more or less in the same way for a wide range of activities. First, problem solving generally proceeds by selective search through large sets of possibilities, using rules of thumb (heuristics) to guide the search. Because the possibilities in realistic problem situations are virtually endless, a trial-and-error search would simply not work.

The search must be highly selective. One of the procedures often used to guide the search is described as hill climbing—using some measure of approach to the goal to determine where it is most profitable to look next. Another and more powerful common procedure is means-ends analysis.

When using this method, the problem solver compares the present situation with the goal, detects differences between them, and then searches memory for actions that are likely to reduce the difference. Another thing that has been learned about problem solving, especially when the solver is an expert, is that the solver's thought process relies on large amounts of information that is stored in memory and that is retrievable whenever the solver recognizes cues signalling its relevance.

One of the accomplishments of contemporary problem-solving theory has been to provide an explanation for the phenomena of intuition and judgement frequently seen in experts' behaviour. The store of expert knowledge seems to be in some way indexed by the recognition cues that make it accessible. Combined with some basic inferential capabilities (perhaps in the form of means-ends analysis), this indexing function is applied by the expert to find satisfactory solutions to difficult problems.

Most of the challenges which managers of safety face will be of a kind that require some kind of problem solving—for example, detecting what the underlying causes of an accident or a safety problem really are, in order to figure out some preventive measure. The problem-solving cycle developed by Hale et al. (1994)—see [figure 59.8](#)—gives a good description of what is involved in the stages of safety problem solving.

What seems evident is that at present it is not possible and may not even be desirable to develop a strictly logical or mathematical model for what is an ideal problem-solving process in the same manner as has been followed for rational choice theories. This view is supported by the knowledge of other difficulties in the real-life instances of problem solving and decision making which are discussed below.

III-Structured Problems, Agenda Setting and Framing

In real life, situations frequently occur when the problem-solving process becomes obscure because the goals themselves are complex and sometimes ill-defined. What often happens is that the very nature of the problem is successively transformed in the course of exploration. To the extent that the problem has these characteristics, it may be called ill-structured. Typical examples of problem-solving processes with such characteristics are (1) the development of new designs and (2) scientific discovery.

The solving of ill-defined problems has only recently become a subject of scientific study. When problems are ill-defined, the problem-solving process requires substantial knowledge about solution criteria as well as knowledge about the means for satisfying those criteria.

Both kinds of knowledge must be evoked in the course of the process, and the evocation of the criteria and constraint continually modifies and remoulds the solution which the problem-solving process is addressing. Some research concerning problem structuring and analysis within risk and safety issues has been published, and may be profitably studied; see, for example, Rosenhead 1989 and Chicken and Haynes 1989.

Setting the agenda, which is the very first step of the problem-solving process, is also the least understood. What brings a problem to the head of the agenda is the identification of a problem and the consequent challenge to determine how it can be represented in a way that facilitates its solution; these are subjects that only recently have been focused upon in studies of decision processes.

The task of setting an agenda is of utmost importance because both individual human beings and human institutions have limited capacities in dealing with many tasks simultaneously. While some problems are receiving full attention, others are neglected. When new problems emerge suddenly and unexpectedly (e.g., firefighting), they may replace orderly planning and deliberation.

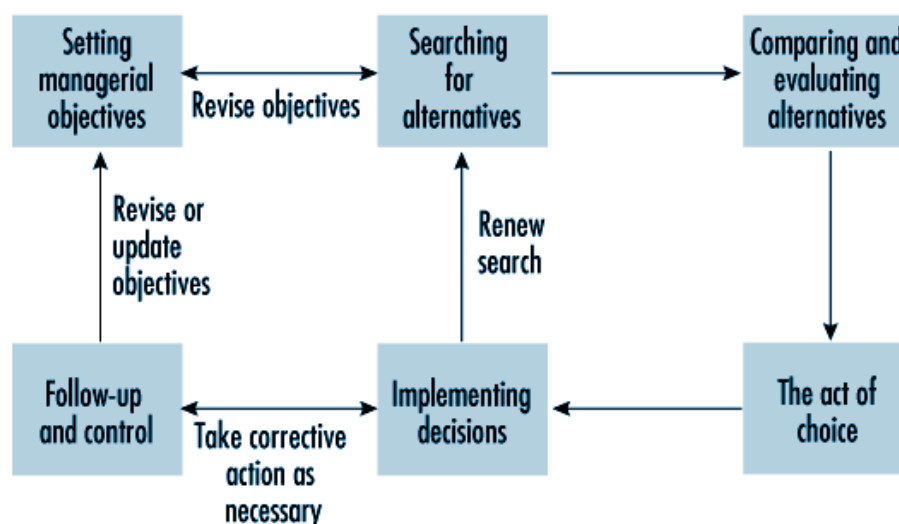
The way in which problems are represented has much to do with the quality of the solutions that are found. At present the representation or framing of problems is even less well understood than agenda setting. A characteristic of many advances in science and technology is that a change in framing will bring about a whole new approach to solving a problem.

One example of such change in the framing of problem definition in safety science in recent years, is the shift of focus away from the details of the work operations to the organizational decisions and conditions which create the whole work situation—see, for example, Wagenaar et al. (1994).

Decision Making in Organizations

Models of organizational decision making view the question of choice as a logical process in which decision makers try to maximize their objectives in an orderly series of steps ([figure 59.9](#)). This process is in principle the same for safety as for decisions on other issues that the organization has to manage.

Figure 59.9 The decision-making process in organizations



Source: Harrison 1987.

These models may serve as a general framework for “rational decision making” in organizations; however, such ideal models have several limitations and they leave out important aspects of processes which actually may take place. Some of the significant characteristics of organizational decision-making processes are discussed below.

Criteria applied in organizational choice

While rational choice models are preoccupied with finding the optimal alternative, other criteria may be even more relevant in organizational decisions. As observed by March and Simon (1993), organizations for various reasons search for satisfactory rather than optimal solutions.

- **Optimal alternatives.** An alternative can be defined as optimal if (1) there exists a set of criteria that permits all alternatives to be compared and (2) the alternative in question is preferred, by these criteria, to all other alternatives (see also the discussion of rational choice, above).
- **Satisfactory alternatives.** An alternative is satisfactory if (1) there exists a set of criteria that describes minimally satisfactory alternatives and (2) the alternative in question meets or exceeds these criteria.

According to March and Simon (1993) most human decision making, whether individual or organizational, is concerned with the discovery and selection of satisfactory alternatives. Only in exceptional cases is it concerned with discovery and selection of optimal alternatives. In safety management, satisfactory alternatives with respect to safety will usually suffice, so that a given solution to a safety problem must meet specified standards.

The typical constraints which often apply to optimal choice safety decisions are economic considerations such as: “Good enough, but as cheap as possible”.

Programmed decision making

Exploring the parallels between human decision making and organizational decision making, March and Simon (1993) argued that organizations can never be perfectly rational, because their members have limited information-processing capabilities. It is claimed that decision makers at best can achieve only limited forms of rationality because they

- usually have to act on the basis of incomplete information,
- are able to explore only a limited number of alternatives relating to any given decision, and
- are unable to attach accurate values to outcomes.

March and Simon maintain that the limits on human rationality are institutionalized in the structure and modes of functioning of our organizations. In order to make the decision-making process manageable, organizations fragment, routinize and limit the decision process in several ways.

Departments and work units have the effect of segmenting the organization’s environment, of compartmentalizing responsibilities, and thus of simplifying the domains of interest and decision making of managers, supervisors and workers. Organizational hierarchies perform a similar function, providing channels of problem solving in order to make life more manageable.

This creates a structure of attention, interpretation and operation that exerts a crucial influence on what is appreciated as “rational” choices of the individual decision maker in the

organizational context. March and Simon named these organized sets of responses performance programmes, or simply programmes.

The term programme is not intended to connote complete rigidity. The content of the programme may be adaptive to a large number of characteristics that initiate it. The programme may also be conditional on data that are independent of the initiating stimuli. It is then more properly called a performance strategy.

A set of activities is regarded as routinized to the degree that choice has been simplified by the development of fixed response to defined stimuli. If searches have been eliminated, but choice remains in the form of clearly defined systematic computing routines, the activity is designated as routinized.

Activities are regarded as unroutinized to the extent that they have to be preceded by programme-developing activities of a problem-solving kind. The distinction made by Hale et al. (1994) (discussed above) between the levels of execution, planning and system structure/management carry similar implications concerning the structuring of the decision-making process.

Programming influences decision making in two ways:

- by defining how a decision process should be run, who should participate, and so on, and
- by prescribing choices to be made based on the information and alternatives at hand.

The effects of programming are on the one hand positive in the sense that they may increase the efficiency of the decision process and assure that problems are not left unresolved, but are treated in a way that is well structured.

On the other hand, rigid programming may hamper the flexibility that is needed especially in the problem-solving phase of a decision process in order to generate new solutions. For example, many airlines have established fixed procedures for treatment of reported deviations, so-called flight reports or maintenance reports, which require that each case be examined by an appointed person and that a decision be made concerning preventive actions to be taken based on the incident.

Sometimes the decision may be that no action shall be taken, but the procedures assure that such a decision is deliberate, and not a result of negligence, and that there is a responsible decision maker involved in the decisions.

The degree to which activities are programmed influences risk taking. Wagenaar (1990) maintained that most accidents are consequences of routine behaviour without any consideration of risk. The real problem of risk occurs at higher levels in organizations, where the unprogrammed decisions are made.

But risks are most often not taken consciously. They tend to be results of decisions made on issues which are not directly related to safety, but where preconditions for safe operation were inadvertently affected. Managers and other high-level decision makers are thus more often permitting opportunities for risks than taking risks.

Decision Making, Power and Conflict of Interests

The ability to influence the outcomes of decision-making processes is a well-recognized source of power, and one that has attracted considerable attention in organization-theory literature. Since organizations are in large measure decision-making systems, an individual or group can exert major influence on the decision processes of the organization. According to Morgan (1986) the kinds of power used in decision making can be classified into the following three interrelated elements:

The decision premises. Influence on the decision premises may be exerted in several ways. One of the most effective ways of “making” a decision is to allow it to be made by default. Hence much of the political activity within an organization depends on the control of agendas and other decision premises that influence how particular decisions will be approached, perhaps in ways that prevent certain core issues from surfacing at all.

In addition, decision premises are manipulated by the unobtrusive control embedded in choice of those vocabularies, structures of communications, attitudes, beliefs, rules and procedures which are accepted without questioning. These factors shape decisions by the way we think and act. According to Morgan (1986), visions of what the problems and issues are and how they can be tackled, often act as mental straitjackets that prevent us from seeing other ways of formulating our basic concerns and the alternative courses of action that are available.

The decision processes. Control of decision processes is usually more visible than the control of decision premises. How to treat an issue involves questions such as who should be involved, when the decision should be made, how the issue should be handled at meetings, and how it should be reported. The ground rules that are to guide decision making are important variables that organization members can manipulate in order to influence the outcome.

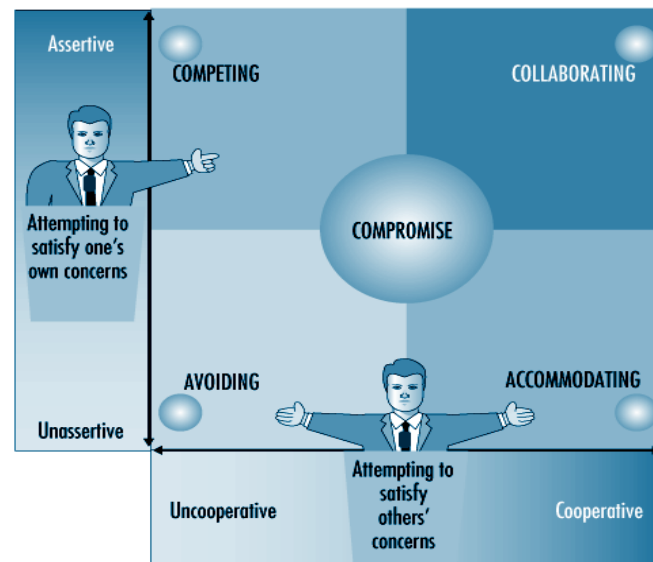
The decision issues and objectives. A final way of controlling decision making is to influence the issues and objectives to be addressed and the evaluative criteria to be employed. An individual can shape the issues and objectives most directly through preparing reports and contributing to the discussion on which the decision will be based. By emphasizing the importance of particular constraints, selecting and evaluating the alternatives on which a decision will be made, and highlighting the importance of certain values or outcomes, decision makers can exert considerable influence on the decision that emerges from discussion.

Some decision problems may carry a conflict of interest—for example, between management and employees. Disagreement may occur on the definition of what is really the problem—what Rittel and Webber (1973) characterized as “wicked” problems, to be distinguished from problems that are “tame” with respect to securing consent.

In other cases, parties may agree on problem definition but not on how the problem should be solved, or what are acceptable solutions or criteria for solutions. The attitudes or strategies of conflicting parties will define not only their problem-solving behaviour, but also the prospects of reaching an acceptable solution through negotiations. Important variables are how parties attempt to satisfy their own versus the other party’s concerns ([figure 59.10](#)).

Successful collaboration requires that both parties are assertive concerning their own needs, but are simultaneously willing to take the needs of the other party equally into consideration.

Figure 59.10 Five styles of negotiating behaviour



Source: Dunette 1976.

Another interesting typology based on the amount of agreement between goals and means, was developed by Thompson and Tuden (1959) (cited in Koopman and Pool 1991). The authors suggested what was a “best-fitting strategy” based on knowledge about the parties’ perceptions of the causation of the problem and about preferences of outcomes (figure 59.11).

Figure 59.11 A typology of problem-solving strategy

		PREFERENCES ABOUT POSSIBLE OUTCOME	
		Agreement	Disagreement
BELIEFS ABOUT CAUSATION	Agreement		
	Disagreement		
	Disagreement		

Source: Thompson and Tuden 1959.

If there is agreement on goals and means, the decision can be calculated—for example, developed by some experts. If the means to the desired ends are unclear, these experts will have to reach a solution through consultation (majority judgement). If there is any conflict about the goals, consultation between the parties involved is necessary.

However, if agreement is lacking both on goals and means, the organization is really endangered. Such a situation requires charismatic leadership which can “inspire” a solution acceptable to the conflicting parties.

Decision making within an organizational framework thus opens up perspectives far beyond those of rational choice or individual problem-solving models. Decision processes must be seen

within the framework of organizational and management processes, where the concept of rationality may take on new and different meanings from those defined by the logicity of rational choice approaches embedded in, for example, operations research models.

Decision making carried out within safety management must be regarded in light of such a perspective as will allow a full understanding of all aspects of the decision problems at hand.

Risk Assessment

The next step in information-processing is risk assessment, which refers to the decision process as it is applied to such issues as whether and to what extent a person will be exposed to danger. Consider, for instance, driving a car at high speed. From the perspective of the individual, such decisions have to be made only in unexpected circumstances such as emergencies.

Most of the required driving behaviour is automatic and runs smoothly without continuous attentional control and conscious risk assessment.

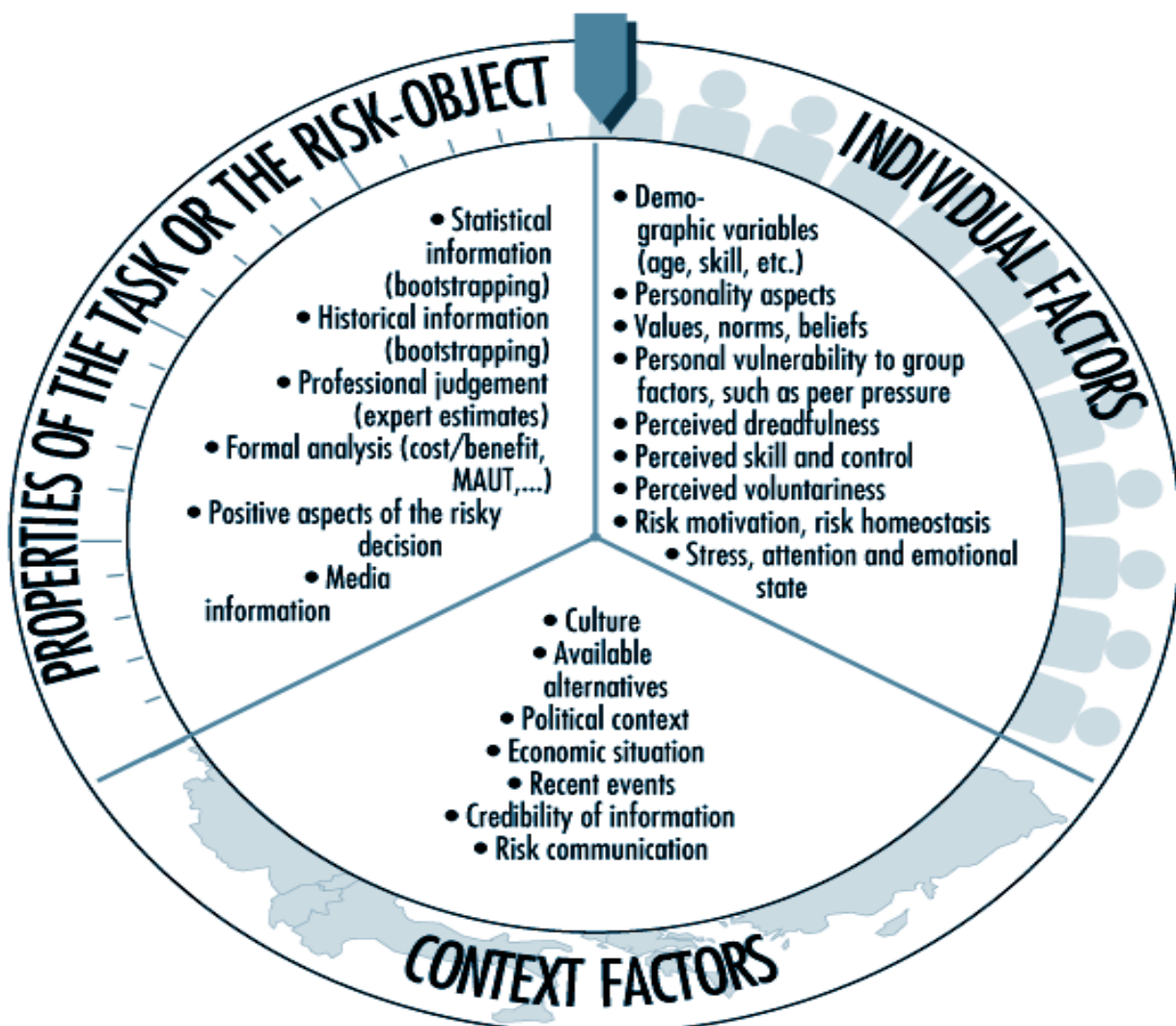


Figure 59.17 Individual biases that influence risk evaluation and risk acceptance

Figure 59.19 Purposes of risk communication

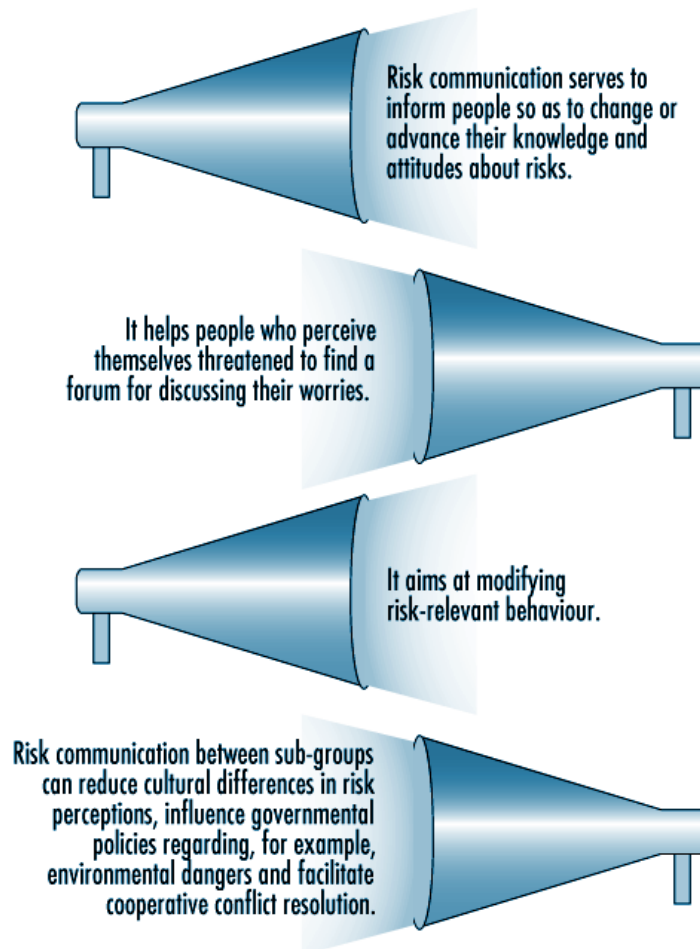
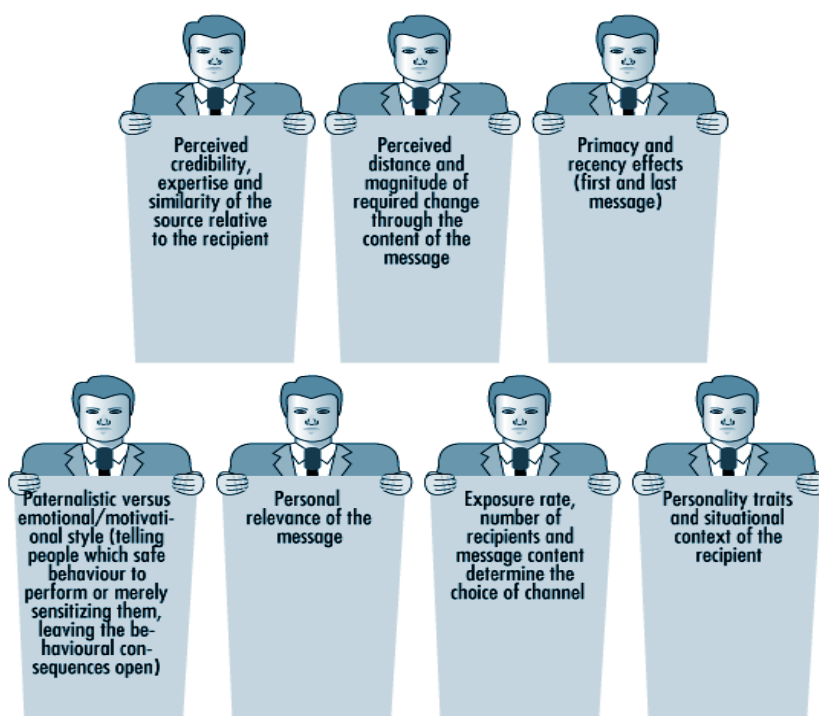
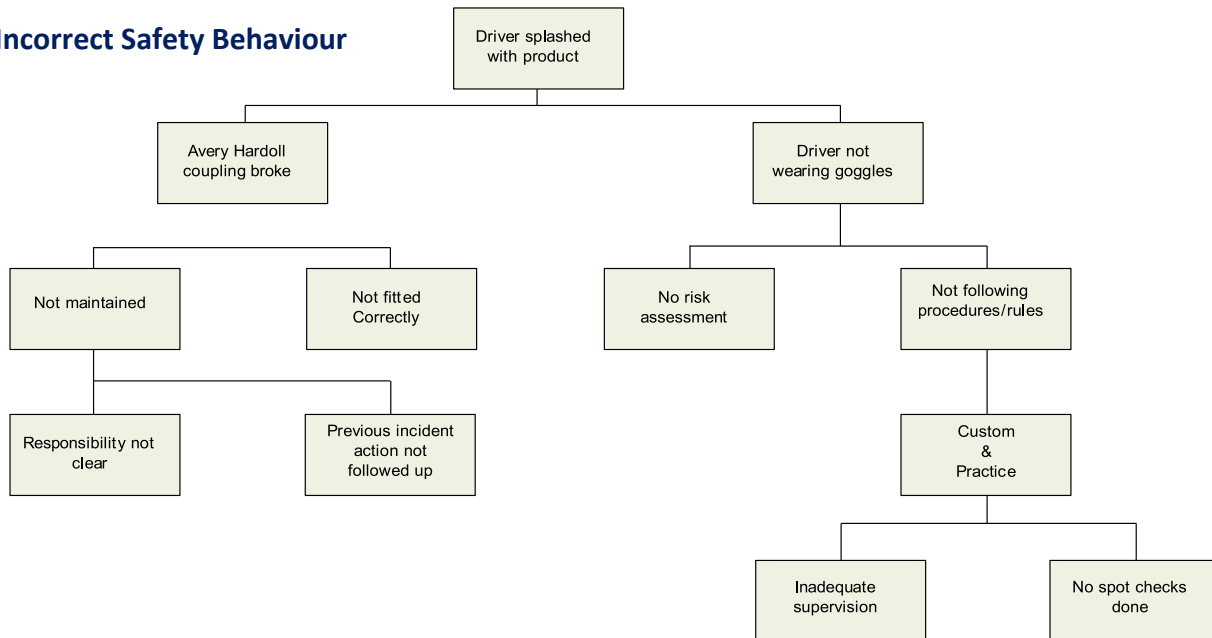


Figure 59.20 Factors influencing the effectiveness of risk communication



Incorrect Safety Behaviour



Correct Safety Behaviour and Continues Improvement

PROCEDURES	TRAINING	COMPLIANCE	BEHAVIOUR	EQUIPMENT
<ul style="list-style-type: none"> • <i>Relevant?</i> • <i>Exist/available/clear?</i> • <i>Responsibilities</i> • <i>Risk assessment</i> • <i>Routine task</i> • <i>Unfamiliar task</i> • <i>Custom & practice</i> • <i>COSSH</i> 	<ul style="list-style-type: none"> • <i>Induction</i> • <i>General</i> • <i>Plant</i> • <i>Product</i> • <i>Refresher</i> • <i>Adequacy</i> • <i>Validation</i> • <i>Supervision</i> • <i>Communication</i> 	<ul style="list-style-type: none"> • <i>Unsafe act</i> • <i>Short cut</i> • <i>Mistaken priority</i> • <i>Lack of knowledge</i> • <i>Auditing</i> • <i>Spot checks</i> • <i>SUSAs</i> 	<ul style="list-style-type: none"> • <i>Communication</i> • <i>Auditing /SUSAs</i> • <i>Blatant disregard</i> • <i>Horseplay</i> • <i>Clear understanding</i> • <i>Complexity</i> • <i>Confusion</i> 	<ul style="list-style-type: none"> • <i>Design</i> • <i>Maintenance</i> • <i>Inspection</i> • <i>Modification</i> • <i>Wear & tear</i> • <i>Abuse/ misuse</i> • <i>Housekeeping</i> • <i>Suitability</i> • <i>Correct tool</i>

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