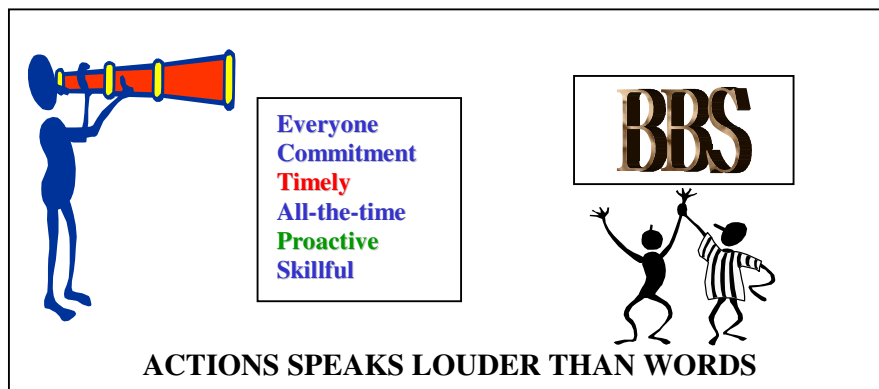


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**BEHAVIORAL SAFETY PROCESS & TOOLS**  
*Safety Observation & Intervention by Workers & Contractors*

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**Abstract**

This paper is intended to provide the latest state-of-the-art Behavioral Safety Process and Tools for the involvement of operators, workers and contractors in building a positive safety culture in the company. The following themes will be covered:

1. What is BBS? Why?
2. The total approach - SAFETY TRINITY at the workplace.
3. Safety Roles for Every Level - Everyone must adopt safe and healthy practices at all times at the workplace.
4. How Does BBS Work? Help others adopt safe/healthy habits using techniques of motivation & change.
5. The "C.O.A.C.H" Process - Behavioral Navigation Process & Tools *for Observation, Analysis & Intervention Tools*.
6. Key Safety Performance Indicators

**1. What is BBS? Why?**

Today, many companies are still unable to meet their safety performance objectives. To reduce this gap many companies are focusing on behavior of workers at work. The thinking behind this approach is that an accident is either worker-related, meaning the incident was caused by individual choice or error, or facilities-related, meaning the cause was maintenance, equipment design, and so on.

**Behavior-based safety (BBS)** is about the use scientific psychology to understand why people behave they way they do when it comes to safety. Typically it creates an attitude and awareness that will reduce the chance of injury. BBS introduces a systematic, ongoing approach or process (the C.O.A.C.H process) that clearly defines how you can help to reduce risk of injury to people in your work team. BBS helps to bring about the result of a proactive and positive safety culture where risk

awareness and accident prevention are core values to you and your team workers. Besides ensuring safe behaviors, we can also try to reinforce people's values with regard to finding low risk alternatives to unsafe attitudes, beliefs, and actions. Used along with good engineering and administrative controls, BBS can be a powerful tool for achieving continuous improvement in safety performance. It is crucial to integrate BBS with other traditional protective activities related to Health, Safety, Environment, Quality and Innovation.

These observations are the basis for recognition, problem-solving, and continuous improvement.

## 2. The Total Approach - SAFETY TRINITY

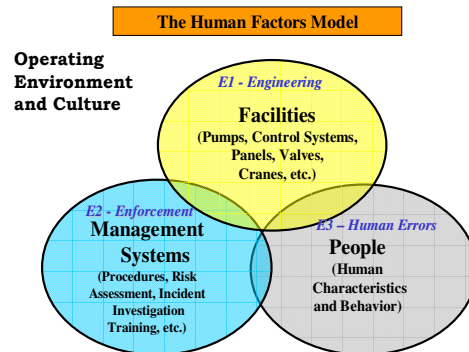
Past incident and accident analysis across industries have shown that the main cause of the injury lies in the interaction between the worker and the facility and/or procedures. The interaction of these factors—conditions, management systems, and what people do—is called the *Safety Trinity* or the *Working Interface*.

BBS is concerned with assessing the working interface by looking at how the work is done, not because the worker is to be blamed, but because real safety improvement happens by understanding and improving how things actually occur in the workplace. This means identifying and defining, in operational terms, the critical interfaces associated with how the equipment is used or how procedures affect risk.

### Chart 1: WHY BBS? - The Philosophy

#### BBS is based on these 10 basic principles:

1. Every incident can be avoided.
2. No job is worth getting hurt for.
3. Every job will be done safely.
4. Incidents (accidents & near hits) can be managed.
5. Most importantly, safety is everyone's responsibility.
6. Best Safe Practices should be at the line, workplace or office.
7. Safety standards (safe procedures & management practices) must be clear and well understood
8. Everyone understands and meets requirements through training.
9. Regular conformance appraisals needed to evaluate success of implementation of the programs through audits.
10. Investigations are used to detect problems in the acceptance of responsibilities, standards, training, and auditing.



## 3. Safety Roles for Every Level

Unlike traditional safety methods which involve the use of safety officers and supervisors, BBS initiatives engage all levels of the organization in safety support and success.

**Front-line employees** –BBS offers the opportunity for front-line employees to contribute to safety. Typically front-line employees are responsible for running the process, from conducting observations to running meetings to data analysis and action plan completion. These workers must have adequate

**The BBS Mission:** All injuries and occupational illness are preventable and can be managed. This is best achieved by having a culture where each person feels responsible for his/her own, and his/her work colleagues' safety. Each worker will be using personnel safety processes to influence safe behavior and eliminate or manage risk. It is therefore each worker's prime responsibility to ensure that one works safely by observing safe work practices and providing feedback to your fellow colleagues on work safety. Employees will be conducting peer observations and interventions on safety practices within their own work areas.

training for their role. This training typically consists of interaction skills and behavior-based principles and specific time management and organization skills for working with people.

**Supervisors and team leaders** – Supervisors have the most influence over day-to-day activities that affect performance outcomes. Supervisors can conduct observations during their supervisory walk and assist in barrier removal strategies.

**Senior leaders and managers** – Managers and safety officers can also get involved with safety walks relating to on-the-floor observations or barrier removal, and setting the stage for a healthy organizational culture. Site managers can get more directly involved by becoming process champions or engage in directed coaching that helps them bring about an excellent safety culture at the workplace.

#### **4. How BBS Work?**

BBS work by having the workers change their work habits: *“From the old way which is about improving safety performance by focusing on operator error, to the new way which is focusing on the cultural and management system that influence safety behavior and using the position of leadership to empower employees at all levels to take responsibility for safety.”*

There are two ways of thinking about safety. Traditionally, safety has been about avoiding costs. Many organizations have been bankrupted by the cost of a high profile accident. Safety pays off in reduced losses and enhanced productivity as safety and efficiency are positively linked. A safety management will provide an organization with the capacity to anticipate and address safety issues before they lead to an incident or accident. A safety management system also provides management with the ability to deal effectively with accidents and near misses so that valuable lessons are applied to improve safety and efficiency.

#### **Employee’s Role in Positive Safety Culture**

Safety Awareness is about a mindset, an attitude and about safety controls being designed into every aspect of work in the organization. Therefore, all safety goals must be communicated, realistic and reflect the “safety culture” of the organization. All

employees must cherish “Safety as # 1 priority” and as a core value and integral part of business.

#### **Employees will be able to:**

1. Recognizes safe behaviors
2. Acknowledge unsafe behaviors.
3. Point out unsafe behaviors.
4. Understands the risks.
5. Understands benefits of working safely.
6. Agrees that unsafe behaviors are not worth the consequences.
7. Suggest proper safe behaviors.
8. Agree to a formal contract for improvement

#### **Management Role In Positive Safety Culture**

Management practices what it preaches regarding safety. It allocates adequate resources to maintain an operation that is efficient and safe. Management therefore acknowledges safety concerns and suggestions by giving feedback on decisions, explaining the decision if there is no feedback and ensure that feedback is timely, relevant and clear.

#### **Management accomplishes several objectives:**

1. Stops unsafe acts before they lead to an incident.
2. Replaces unsafe behavior with safe habits.
3. Helps employees make better choices about working safely.

#### **BBS is about creating a Positive Culture**

It is about creating an informed culture where people understand the hazards and risks involved in their own operation and staff work continuously to identify and overcome threats to safety. It is also a just culture where errors must be understood but willful violations cannot be tolerated and the workforce knows and agrees on what is acceptable and unacceptable. It is a reporting culture where people are encouraged to voice safety concerns and when safety concerns are reported they are analyzed and appropriate action is taken. It is also a learning culture where people are encouraged to develop and apply their own skills and knowledge to enhance organizational safety and where staff is updated on safety issues by management and safety reports are fed back to staff so that everyone learns the lessons.

**5. The C.O.A.C.H Process**  
**Behavioral Navigation Process & Tools**

Observation, Analysis and Intervention are the basis of the BBS system. Observations provide the objective data that make behavioral safety uniquely effective. Intervention is essential because maintaining any behavior change requires frequent, objective, and positive feedback. *BBS is an approach that teaches the frontline workers, supervisors and others to be keen observers of behavior and to provide high-quality feedback that improves safety performance and identify systems-related issues for resolution.*

**Observation Process:** All workers learn to identify behaviors critical to safe performance using simple observation techniques. It is common for the work team to discover the Pareto Principle which states that only 20-35 behaviors are implicated in 90-95% of recent incidents. Workers who are most familiar with the daily risks of the job, will be better equipped to identify additional behaviors that are critical to worker safety. These behaviors can be defined in operational terms and categorize them for inclusion in a data sheet. Operational definitions might focus on areas like pinch-points, line-of-fire, eyes-on-path, and 3-point-contact on ladders or stairs or scaffolding.

these injuries.” The BBS approach allows you to examine the Safety Trinity to find out what is really going on. The tool that can help you understand this interaction is *Applied Behavioral Analysis*.



The workers must know how to analyze behavior using this ABC analysis. This approach works on the principle that activators or antecedents set the stage for behavior and consequences encourage or discourage the repetition of that behavior. Antecedents influence behavior to the degree that they predict consequences. However, many organizations spend considerable time and other



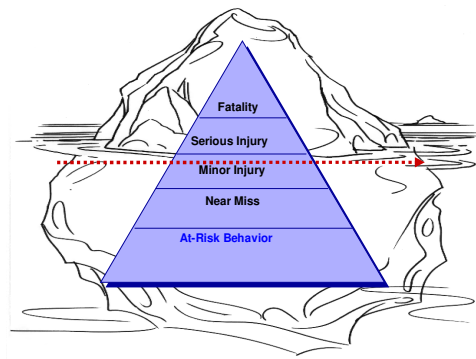
**BBS COACH Process**

*EVERYONE MUST BE TRAINED TO WORK SAFELY*

Behavioural Based Safety Training has the ultimate aim of making safety everyone's, and not just the safety leader's, responsibility:

- We Care →
- We Observe each other working →
- We Analyse our actions →
- We Communicate/Commit feedback →
- We Help to prevent injuries →

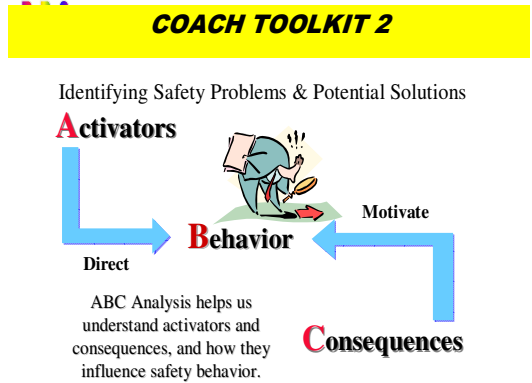
**COACH TOOLKIT 1**  
 Focusing on Behaviors Can Reduce Injuries



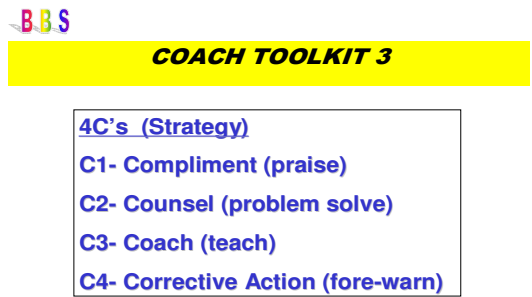
**Analyzing data** – Observational data is collected and analyzed to identify areas needing special attention. Often we can hear the following remarks being made: “If only employees would listen, then they wouldn’t get hurt,” or “If only they would fix that equipment then we wouldn’t be having

resources on antecedents like signs, posters, and training, instead of identifying and fixing the consequences that support or discourage safe behavior. Successful BBS initiatives use applied behavior analysis to understand the data they collect

on the working interface – and to map out how best to improve it.



**Communicating Feedback** – After gathering data, observers have informal discussions with their co-workers about the safe and at-risk behaviors they observed. The observer points out the places where the employee was performing safely and tries to discover the reasons behind any observed at-risk behaviors. The observer records co-worker suggestions and ideas about barriers to safe work. Data recorded in the observation is then analyzed by computer software. Posted reports and charts of workgroup performance provide additional ongoing feedback.



In order to appreciate the various effective styles of communicating feedback, the following six influencing styles are to be chosen for a specific strategy:

**The Critical Parent.** It communicates that you are not okay by words, gestures, facial expressions, body posture and/or tone of voice. It often points a

finger and speaks louder. It is sometimes sarcastic.



**The Nurturing Parent.** It is empathetic and understanding. It is sensitive to the needs, wants and feelings of others. It is firm in a caring and non-demanding way.

**The Adult.** It is like a computer that takes in, stores, processes and sends out information. It is logical, reasonable and rational. It deals with facts and thinking instead of feelings, attitudes and opinions. It is the part of you that is used to determine whether, when and how to express yourself.

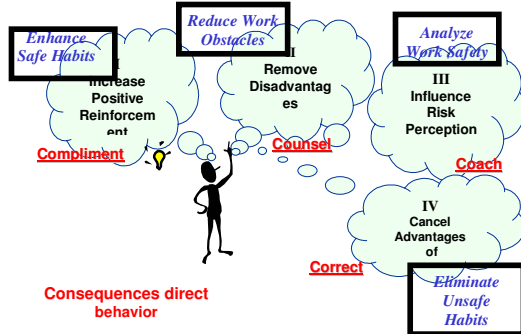
**The Natural Child.** It has needs for strokes, structure, recognition and stimulation. It has wants that vary from moment to moment. It needs and wants are met. It expresses warmth. If needs and wants are not met, it expresses anger, sadness and fear. The Natural Child looks like, sounds like, and is in fact a spontaneous little kid experiencing these needs.

**The Rebellious Child.** It says that it's not going to listen to you, agree with you, or do what you want. It tends to get angrier than the situation calls for, and it stays angry longer. It is very negative. This may be obvious or subtle. It rebels indirectly by forgetting, procrastinating and doing things differently, half-way or poorly.

**The Compliant Child.** It communicates: "I'm not okay" in subtle (or not-so-subtle) ways. It speaks with a softer voice, uses wishy-washy words and rarely makes eye contact. It tends to whine. Its behavior is to be very careful and self-protective.

**Removing Barriers through Appropriate interventions** – The main objective of the feedback is for the work teams to develop relevant intervention strategies. There are four main types of strategies. See the following chart 4.

**Chart 4: Four Intervention Strategies**



These four strategies are to be used after a careful analysis of the critical behaviors observed: complimenting to be used for enhancing safe behavior, counselling to be used for reducing the difficulties associated with safe behavior, coaching to be used for educating workers on risk perception and correcting approach to be used for removing barriers associated with unsafe behavior.

**Chart 5: Safety Key Performance Indicators**

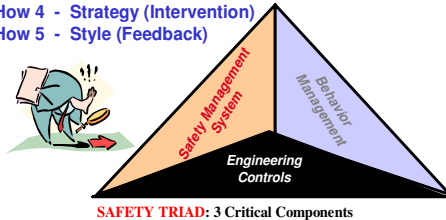
The success of C.O.A.C.H Process will depend on the following key performance indicators:

1. Safety standards are communicated to all employees.
2. Responsibilities for implementing standards are understood and accepted.
3. Records document how standards are met.
4. Internal management control.
5. Cost avoidance.
6. Improved quality.
7. Better productivity.
8. Team building.
9. Unsafe behavior stands out.
10. Unsafe behavior is unacceptable.
11. Safe work is influenced through peer pressure.
12. Consistent planning and task execution.

**COACH TOOLKITS**

**BEHAVIORAL BASED SAFETY**

- What 1 - At-Risk Behaviors
- Why 2 - Causes
- Why 3 - Questioning
- How 4 - Strategy (Intervention)
- How 5 - Style (Feedback)



**7. Key Safety Performance Indicators**

BBS offers many powerful benefits. It requires hard work, careful planning, and a balanced approach. But with good execution and the right tools, BBS can become an important part of our total approach to overall safety excellence.

**Evaluation of Safety Success**

- Attitude – continuous, everytime, everyone.**
- Awareness – perception, analysis, habits & understanding**
- Action – compliment, coach, counseling or correction.**
- Accountability – go for zero and incident prevention.**

RESOURCE LEADER/TRAINER/CONSULTANT  
**VICTOR F L TAI, BA (Hons), MSc, PhD, CMC.**  
*Management Consultant & Psychologist*

Victor F L Tai is a qualified Industrial Psychologist and a Managing Director of PSYSCAN CONSULTING INTERNATIONAL, a specialist agency in Management Psychology for the past 24 years. He is also a senior consultant psychologist with the Adam Road Hospital for the past 10 years.

Victor had more than 25 years of teaching and consulting experiences in Singapore, ASEAN and the United States. He has lectured and trained several thousands of executives, managers and professionals from numerous organizations. He had previously held positions as Chief Psychologist, Head of Personnel Research Department and Head of Education Department at the Ministry of Defence.

He had served as a resource person for the National University of Singapore, Singapore Institute of Management, National Productivity Board, Singapore Institute of Personnel Management and Ministry of Education. He had delivered many in-house training programs on topics ranging from Communication to Interpersonal Relations, from Supervisory to Management Development, and from Leadership to Organization Development.

He has served as a Behavior-Based Safety Consultant for the Ministry of Manpower for the last two decades; being responsible in bringing psychological knowledge and safety applications to registered safety officers and other officers from the SH&E departments. ExxonMobil Chemical, Shell, Seagate, Sembawang & Keppel Shipyards and China Light Power (HK) have consulted Victor on BBS issues.

He had won a number of scholarships and was a past President of the Singapore Psychological Society and was a founder member of Singapore Society for Executive Health and the Singapore Society of Counselling. He was previously the First Deputy Chairman of the Singapore Professional Centre. He is also a member of the American Psychological Association. He has written 3 books: 1 on Drug Abuse & 2 on Child-Care & Development.

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