THE LEARNING ORGANISATION - Where does your SHE system fit?

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SUMMARY

More and more companies around the globe are starting to realise that organisational learning is one of the few sustainable, competitive edges available to them. If your company can learn faster than your competitors, you will always stay ahead of them.

This realisation has led to a new wave in management thinking. It has led to the development of the concept of a learning organisation. This paper endeavours to look at what learning is, to highlight the importance of "memory" in the learning process, to discover what the key features of a learning organisation are, and to indicate how the introduction of a formal SHE management system can assist companies to become learning organisations.

INTRODUCTION

In essence, becoming a learning organisation and staying ahead of your competition, means being proactive and continuously improving yourself. This is fundamentally what companies, such as NOSA, have been helping companies around the globe to do for nearly half a century.

To be proactive, means to look at things that can go wrong before they actually go wrong. Taking action to prevent things going wrong is the first step in developing systems. Continuous improvement requires that the systems introduced are continuously challenged and refined, preventing them from turning into a bureaucracy.

Thus, the core concept of a "learning organisation" is systems thinking. Companies, such as NOSA, have been assisting clients to develop, introduce, implement and use systems, and therefore systems thinking, for many years. New legislation, introduced in Australia and elsewhere around the globe, now requires companies to introduce formal SHE management systems. This could be seen as a chore, or it could be seen as an opportunity to improve and to become a learning organisation.

To get a better understanding of what a learning organisation is and how this can benefit you, it is firstly important to look at what learning is, and to understand the importance of the memory in the learning process. Most of the problems related to learning can be traced to "forgetting", and understanding how this happens, gives some insight into the problems companies experience. This is followed by a description of what the concept "learning organisation" means and how learning in an organisation occurs.

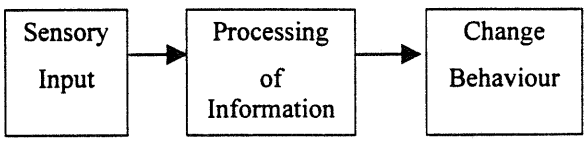
Introducing a formal SHE management system into an organisation, is the ideal opportunity to become a learning organisation. We, in NOSA, have always found that companies who introduce our system, have not only benefited in their SHE performance, but every aspect of their business has benefited from the system's approach.

LEARNING

To understand learning in an organisation, you first need to understand how human beings learn. This is logic, as learning in an organisation manifests itself through the human beings in the organisation. Learning is a key process – some would say THE key process - in human behaviour, it pervades everything we do and think. It plays a central role in the language we speak, our customs, our attitudes and beliefs, our goals, our personality traits, both adaptive and maladaptive, and even our perceptions.

In general terms, learning can be defined as "any relatively permanent change in behaviour which occurs as a result of practice or experience." (Morgan[1]). This definition has three important elements, 1) Learning is a change in behaviour for better or worse; 2) It is a change that takes place through practice or experience; and 3) Before it can be called learning, the change must be relatively permanent and it must last a fairly long time.

The Learning Process (Bergh[2])



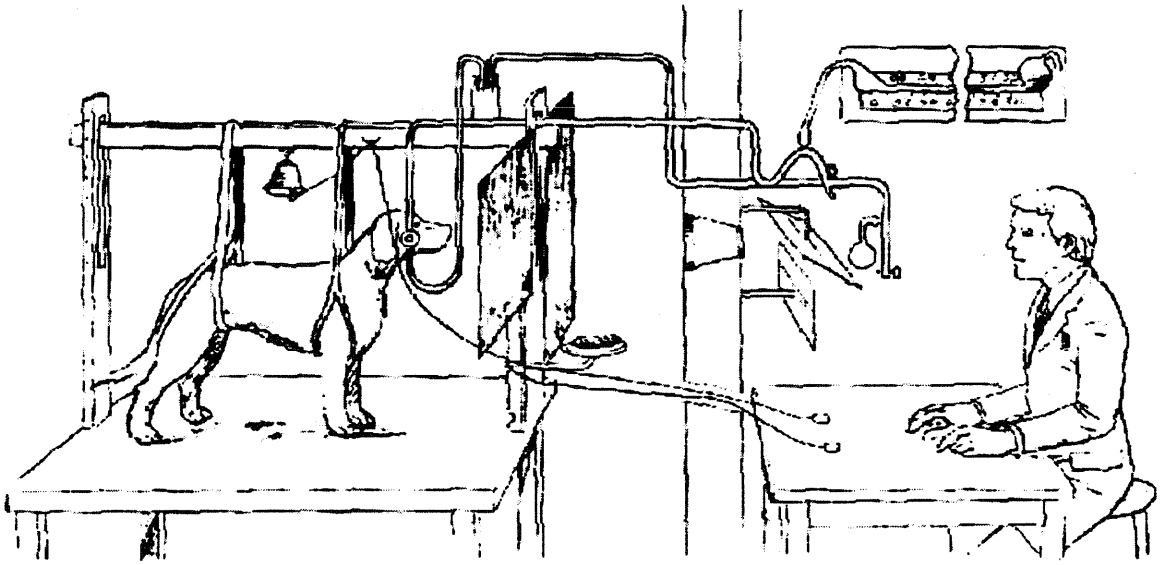
In very basic terms, the learning process starts with sensory input, followed by processing of the information received, which leads to a behaviour by an organism. Learning brings a modification of

behaviour through increased cognitive function. Cognitive processes refer to the processes through which information coming from the senses is transformed, produced, elaborated, recovered and used. The term "information" as used here, simply refers to sensory input from the environment that informs us about something that is happening there. Cognitive processes are the mental processes involved in knowing about the world and, as such, they are important in perception, attention, thinking, problem solving and memory. There are three basic learning processes. These are known to be classical conditioning, operant conditioning and cognitive learning.

Classical Conditioning

Classical conditioning gets its name from the fact that it is the kind of learning situation originally used in the very well known "classical" experiments of Ivan B Pavlov. Beginning in the late 1890s, this famous Russian psychologist established many of the basic principles of this form of learning (conditioning). The essential operation in classical conditioning is a pairing of two stimuli. One of the stimuli is called the conditioned stimulus, while the other stimulus is called the unconditioned stimulus. The learning process called classical conditioning can best be described through the best-known experiment that was designed by Pavlov. Pavlov designed an apparatus for measuring how much a dog's mouth waters in response to food. A cup attached to the dog's cheek collected drops of saliva flowing from the carotid salivary gland, which had been moved to the outside of the cheek by surgery. The saliva ran from the cup to a tube, and the air driven out of the tube in turn displayed a coloured fluid in a calibrated instrument which looked somewhat like a thermometer. Small changes in the flow of saliva could be read on this gauge. The dog was placed in a soundproof room equipped with a one-way vision screen through which the experimenter could see the animal.

By remote control Pavlov could swing a food pan within the dog's reach or he could pump some powdered food into its mouth through a special apparatus. He could also present the dog with several other kinds of stimuli, including the sounds of a bell, a buzzer, or a metronome. In a typical experiment, Pavlov trained the dog by sounding a bell, shortly afterwards presenting food, and then measuring the amount of saliva secreted. After the sound of the bell was paired with food a few times, he tested the effects of the training by measuring the amount of saliva which flowed when the bell was rung alone, without food. Pavlov then resumed the paired presentation of bell and food a few more times, then tested again with the bell alone. The amount of saliva secreted in response to the bell alone increased as conditioning became firmly established.



Pavlov's apparatus for studying the conditioned salivary (drooling) response.

Figure 1

Operant Conditioning

Now we come to another learning situation, operant conditioning, which is usually considered to be distinct from classical conditioning. The key feature of this learning situation is that some action (sub-behaviour) of the learner is instrumental in producing reinforcement (or, loosely speaking, a "reward") when it operates upon the environment. The behaviour that produces the reinforcement, called a response by psychologists, is strengthened in the sense that it is more likely to occur in the future. The basic idea, of course, is not so strange. We expect people to repeat responses and actions that "pay off".

Cognitive Learning

A great deal of learning seems not to involve specific operations of the sort just considered through the headings of both classical and operant conditioning. Instead, people and higher animals too, learn things simply by being exposed to them. If you watched the news on television last night, you probably learned something, and you can probably tell someone what you have learned. As you read, right now, you are learning in a situation different from classical or operant conditioning. In this learning situation, we learn about events in our environment and the relationships amongst them without the reinforcement operation characteristics of classical and operant conditioning situations. Learning in this situation relies heavily on the processing and storage of information as it comes to us from the environment. Learning situations in which the emphasis is on information processing and storage, without the explicit use of reinforcers, is called cognitive learning. Cognitive is a word used in psychology to refer to the processing of information coming in from the senses. Cognitive learning situations are those in which, without explicit reinforcement, there is a change in the ways in which information is processed as a result of some experience a person or animal has had. In other words, without any known reinforcement, a person or animal learns new relationships and associations among events simply as a result of having experienced these events.

MEMORY

These previously mentioned learning processes apply to animals and people alike. In contrast when we study in more detail how human beings learn, memory plays a central role. It is the storage and retrieval of things we've learned earlier, thus learning implies memory and memory implies learning. Therefore, when we understand how the memory of the human being works, we will have a better understanding of how human beings learn.

A very logical information-processing model of how a human memory works (figure 2) has been developed by Atkinson and Schriffen[2]. Memory starts with a sensory input from the environment. The input is held for a very brief time (several seconds at most) in the sensory register that is associated with the sensory channels: vision, hearing, touch, and so forth. From the sensory register, information may be passed on to the short-term store (memory), where it's held for perhaps 20 – 30 seconds. Some of the information reaching the short-term store is processed in what is called a rehearsal buffer. The term buffer refers to a holding stage in which information is processed in certain ways. Information processed in the rehearsal buffer may be passed along to the long-term store (memory); information not processed is effectively lost, or forgotten. When items of information are placed in the long-term store, they are put into organised categories where they reside for days, months, years or a lifetime. When you remember something, a copy of the item is withdrawn, or retrieved, from the long-term store.

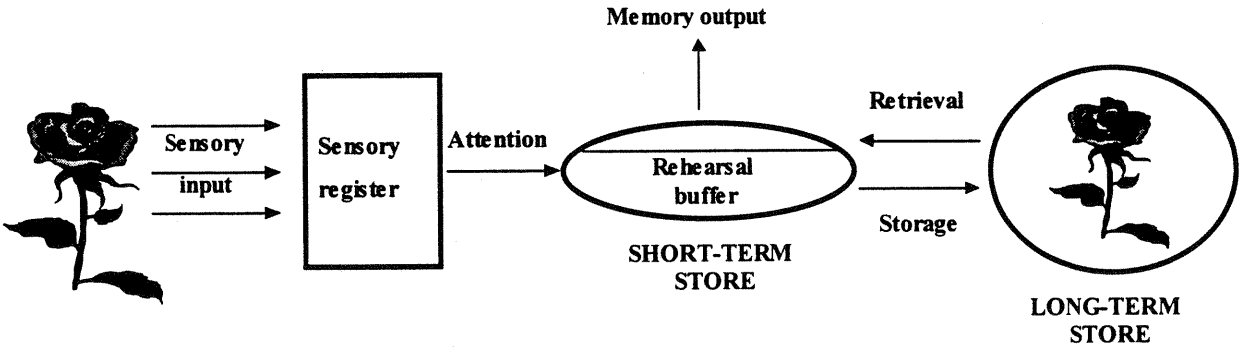


Figure 2

FORGETTING

What is the use of learning if you forget what you have learned? Understanding how and why human beings forget will also give insight into the learning problems that companies experience. It is, therefore, very important that we understand these problems and how these problems manifest in organisations.

Retrieving

One of the biggest problems with learning is that normally, more information gets stored than gets used. Two completely different processes are used, one for storing and one for retrieving. When information gets stored without proper "cues" to be able to retrieve it, that information is lost. This could be the result of a lack of attention whilst the information is being received. Organisations also generate vast amounts of information, which, if it does not get stored with proper cues, will get lost.

Repression

One of the problems with forgetting was described by the well-known psychologist, Freud. People tend to repress thoughts and feelings that might have negative connotations and are, therefore, not nice to remember. This is "motivated forgetting", which we all know exists in organisations ... after all, who likes to be the bearer of bad news.

Losing the Memory Code

Nerve groupings through synaptic connections are formed in the brain during the learning process and are called retrieval cues. If these cues are not used, they will slowly disappear. This, we all know, also occurs in organisations where systems that are seldom used, disappear over time.

Subjective Observation

The information we receive from the environment is being filtered or influenced by previous experience, or even through our feelings. This, once again, is very important for organisations. Systems need to be developed to ensure objectivity. External auditing by companies such as NOSA plays a vital role.

Selective Perception

The human being is continuously bombarded with an overwhelming volume of information. The only way to survive is to cut off unnecessary information. This process sometimes leads to important information getting lost. Once again, this is a phenomenon which impacts on an organisation and is even more serious when people's lives are at stake. Training of people to improve their observation skills can play a positive role.

Interference

Previous learning experiences can have a negative impact on how new information is learned. For instance, it is very difficult to unlearn bad practices in organisations. Sometimes, new information can also lead to confusion and have a negative impact on previously learned behaviour. It is important to consider the impact of interference when organisations develop training modules/material. This is also very important when new systems are introduced.

THE LEARNING ORGANISATION

The concept of the learning organisation is vague, as nobody has really defined it precisely. This in itself is valuable, as De Bono[3] highlights in his book "Serious Creativity", when he describes the values of concepts in our thinking. "In most of our thinking we are encouraged to be precise and to be definite. Concepts, however, are the exception. With concepts we need to be general, non-specific, vague and sometimes "blurry". The more specific we are, the more we limit the usefulness of the concept." Therefore, it is good to look at some of the broad descriptors of what a learning organisation is.

Learning organisations are those organisations that are particularly adept at organisational learning:

- Learning is not merely re-active, but intentional, effective and committed to the purpose and strategy of the organisation.
- Learning is timely, anticipating challenges, threats and opportunities, rather than just responding to crises.
- These organisations understand the importance of systems thinking. They know how to use systems thinking in diagnosing needs and designing new actions so that learning is effective and change is permanent (Senge[6]).
- These organisations understand the importance of building a shared vision through which they establish a commonality of purpose and learning is directed at this purpose.
- They understand the value of mental models, of distinguishing data from instructions based on that data. Simply put, a picture is worth a thousand words, and so much easier to remember (Buzan[5]).
- Personal mastery is seen by these organisations to be important. It helps to develop a creative tension between personal vision and current

reality, and allows this tension to generate energy and learning towards achieving the vision.

- Non-linear thinking is developed. The organisations understand the importance of a multi-factorial approach in investigations and plan the future using scenarios, rather than single-minded pictures (Swartz[4]).
- They understand that team learning is vital, as teams, and not individuals, are the fundamental learning unit in a modern organisation.

LEARNING WITHIN A LEARNING ORGANISATION

The learning process starts through individuals who learn. Individual learning does not, however, guarantee organisational learning, but without it no organisational learning occurs. "Team learning" develops the skills of groups of people to look for the larger picture that lies beyond individual perspective. It is therefore an integral part of and pre-requisite for organisational learning because teams, not individuals, are the fundamental learning unit in a modern organisation.

There needs to be a commonality of purpose, a shared vision and understanding of how to complement one another's efforts. Whether it is research and development, SHE management or in this case a systems approach to business, the active force is "people". Within every organisation people have their own will, their own mind and thinking processes. As Kazuo Inamori, founder and president of Kyocera (a world leader in advanced ceramics technology used in electronic components and medical material) stated "If employees themselves are not sufficiently motivated to challenge the goals of growth and technological development ... there will simply be no growth, no gain in productivity and technological development" (Senge[6]). Thus when an organisation implements a SHE management system such as the NOSA system, the employees must be motivated to challenge the goals and existing control measures and be involved in setting new goals and developing systems to ensure a safer environment for all in the organisation.

KEY COMPONENTS OF A SUCCESSFUL SHE MANAGEMENT SYSTEM

A recent study of a very wide base of clients using the well known NOSA system has revealed some interesting information when the weak performers are compared with those companies that excel.

Weak Performers	Companies that Excel
Head office decision	Ownership
Quick fix	Continuous improvement
Lack of visual commitment from the top	Leadership and commitment from all managers
Recipe	Use the framework / intent
Standards written for the company	Participation from all
Know-it-all approach	Invest in training
"Tall poppy" syndrome	Recognition
Bureaucracy	User friendly approach
Safety department responsible	Team effort: support from safety department
"Perfect system" to fix all problems	Identify critical factors that drive success
Another system	Integrated with other systems
Blame the "NOSA" system	Implement and own their system
Auditing = Policing	Auditing = Partnership
Objective : Stars	Objective : Safety

It is very clear from this that companies with a "learning organisation" approach outperform the others.

HOW CAN YOUR SHE MANAGEMENT SYSTEM SUPPORT YOU TO BECOME A LEARNING ORGANISATION?

As was previously highlighted, the memory of a human being plays a central role in the learning process. Likewise, without a corporate memory, companies would not be able to learn. We all know the value of experienced people in an organisation

and have all experienced the serious impact on a company when a key person resigns or suddenly dies. It is, therefore, very dangerous for companies to rely on people to be their memory.

The systems in a company are the other part of the corporate memory. A well-developed, holistic system, which is understood by everybody, can significantly enhance the corporate memory. It is, therefore, essential that a well-defined system be used with clear definitions of the different components, all logically linked and fully integrated throughout the organisation. The system architecture of the NOSA system and framework, for instance, can help companies to develop such a system.

Developing a Shared Vision

"Building a shared vision" fosters a commitment to the long term purpose, vision and goals. It is the practice, which involves the skills of unearthing, shared "pictures of the future" that foster genuine commitment and enrolment rather than compliance. Visions paints the picture of what we want to create

Shared Vision is vital for the learning organisation and for the introduction of a new SHE management system because it provides the focus and energy for learning. An organisational vision must not be one person's or one group's vision imposed on the organisation. These types of visions are compliance visions – not commitment. A shared vision is a vision that many people are truly committed to, because it reflects their own personal vision.

When a company introduces a new SHE management system, such as the NOSA system, everybody must believe that the vision is possible and must be eager to make it happen. During this process everybody must share the vision that the process will improve the work environment and uplift the spirit amongst individuals in the organisation. Senge[6] believes a shared vision changes people's relationship with the company. It is no longer "their company (managers and shareholders)" but becomes "our company" because we are all stakeholders. NOSA has always found that this is the case when the NOSA system is introduced in a proper way in a company.

Using a System Structure

Rather than trying to develop your own system by trial and error, companies can gain a lot from the experience and knowledge of others. The new system structure, as proposed by NOSA, can save companies many hours and thousands of dollars in developing their own system. This approach is also fully compatible with ISO 9000 and ISO 14000. The structure starts with the vision which gives a picture of where we would like to be as a company, followed by a mission describing our role in society, and what it is that we are good at. Having a set of values which describes what is important to the company also helps clarify in everybody's mind what is expected from them. Following this, we need corporate objectives clarifying what we want to achieve and at what stage.

This is followed by policies for all of the functional areas in the company. Policies should highlight the principles, give direction and empower everybody in the organisation to contribute and support corporate objectives. Underpinning these processes, you should find standards, procedures and work instructions. Together they form the corporate memory.

Standards are developed to be a quick reference of "what are the requirements?" of work that needs to be done. Although standards should be owned by the senior management in an organisation, they will benefit greatly by being developed with input from a cross section of all employees in the organisation.

Procedures are the detailed description of how work should proceed. With procedures, it is important not only to describe where, when, who and how work should be done, but even more importantly, why it should be done in a certain way. These are the vital "cues" that ensure the corporate memory is kept healthy and alive. The modern approach in developing training material, by defining learning outcomes is a very useful tool from which to develop procedures. Simply put, what is the value of having a procedure if you are not going to train anybody to use it?

A very powerful contribution in the development of a system, is the work instruction. NOSA maintains that work instructions should be "critical steps for critical tasks" and all functionalities of a task should be fully integrated in the work instruction as there is only one way of doing a task – it is the right way taking all aspects of the task into consideration, ie. production, cost, safety, quality and the environment.

Using Mental Models

"Mental models" are deeply ingrained assumptions, generalisations or even pictures or images that influence how we understand the world and how we take action.

Senge[6] states "more specifically, new insights fail to get put into practice because they conflict with

deeply held internal images of how things operate. That is why the discipline of managing mental models - surfacing, testing, and improving our internal pictures of how things work - promises to be a major breakthrough for building a learning organisation".

The use of mental models in an organisation will allow individuals to alter their ways of thinking. This will then allow the individuals in a learning organisation to make key decisions based on shared understandings of interrelationships and pattern changes. This process is enhanced through the NOSA system because the changes made to improve the system are owned by the people and once they start to see the improved performance in accident prevention, it will lead to the self fulfilling prophecy: "Success breeds success".

Developing Systems Thinking

Systems thinking requires a break with the traditional cause and effect, single factor, reactive approach. It requires a new mindset, where a multi-factorial approach and its inter-relatedness is integrated in a holistic manner. It also teaches that there are two types of complexity, detail complexity and the dynamic complexity when cause and effect are not close in time and space.

When a company introduces a formal SHE system such as the NOSA system, it gives them the ideal opportunity to develop systems thinking in their organisation. The way that the NOSA approach has been developed is to supply a conceptual framework and a body of knowledge, and a series of tools to make the full pattern clearer and help managers to achieve change effectively.

Facilitate Personal Mastery

"Personal mastery" is the discipline for personal growth and learning. People with high levels of personal mastery are continually expanding their ability to create the results in life they want. Embarking on any path of personal growth is a matter of choice. No one can be forced to develop his or her personal mastery. Thus an organisation must foster a climate in which the principles of personal mastery are practiced in daily life and their surrounding environment. This means building an organisation where it is safe for people to create visions, where querying the norm and challenging the status quo is expected. The introduction of a formal SHE management system such as the NOSA system can assist companies in creating such an environment.

Clarifying vision is one of the easier aspects of personal mastery. A more difficult challenge, for many, comes in facing current reality. The main challenge is the gap between the vision and the current reality. For example, "I would like to reduce our LTIFR from 36 to 10", but "My current systems are not working". There are only two possible ways for the tension to resolve itself: pull reality toward the vision or pull the vision toward reality.

Team Learning

Team learning is vital because teams, not individuals, are the fundamental learning unit in a modern organisation. Team learning starts with "dialogue", the capacity of members of a team to suspend assumptions and enter into a genuine "thinking together". The fundamental characteristic of the relatively unaligned team is wasted energy. Individuals may work extraordinarily hard, but their efforts do not efficiently translate to team effort. By contrast, when a team becomes more aligned, a commonality of direction emerges, and individuals' energies harmonise.

This is very important to realise when a new SHE management system is introduced in a company. Many processes required by a formal approach, such as the NOSA approach, require team learning, for example, safety committee meetings, toolbox talks, incident recall, inspections, surveys and audits. These processes, if used correctly, will all enhance organisational learning.

Audits and inspections require employees to work as a collective group when auditing and inspecting their own work environment. In addition, employees from other departments within the organisation are included because their involvement provides "a fresh pair of eyes" to evaluate that particular work environment. Committee meetings create teamwork because a liaison process is created amongst the managers and operational staff. Their decisions are to be based upon risk and not only cost, therefore learning how to manage risks. Toolbox talks create awareness and enhance personal mastery by forming a clearer picture of what is lying ahead and what needs to be done.

It's been said that true team learning not only produces extraordinary results but that the individual members are growing more rapidly than they would if learning by themselves. Hence benefits are experienced on both spectrums - the safety system and individual learner satisfaction.

CONCLUSION

The modern business world has experienced a flood of new management concepts in the past - Quality Circles, Total Quality Management, Kaizen, Value Engineering, Down Sizing, Right Sizing, Re-engineering to name just a few. These were all very powerful concepts provided they were implemented with firm commitment and effort. Many companies did, however, experience negative impacts when these concepts were introduced as "quick fixes". This led to disruption, employee resentment and frustration, with ultimate repercussions to the business.

Since then, the new management approach has progressed to the next level of business management thinking, namely the concept of the "Learning Organisation". Different to the previous concepts, it has not taken the business world by storm, but has quietly created a new era in business thinking. Many companies have realised that organisational learning can create a very important competitive advantage.

The introduction and use of a formal SHE management system such as the NOSA system, can help a company to become a learning organisation. Many of the key drivers of a modern "learning organisation" are found in a systems approach used by a service provider such as NOSA. These include helping companies to create a shared vision amongst their employees, providing them with a system structure and with a holistic framework around which to build their own systems, to develop systems thinking within organisations, to use mental models, and to facilitate team learning through a variety of activities such as safety committee meetings, toolbox talks, incident recall, inspections, task observations and audits.

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