



Training wheels



Lots of time and effort goes into OHS training, but which approaches really work? **KAREN VAUGHAN** summarises the results of research into workplace learning.

People often try to initiate improvements in workplace safety through training programmes. But while a training programme is necessary, it often isn't sufficient to make the difference. Some findings from recent research on workplace-based learning suggest the best kinds of approaches to training are ones that engage both the individual learner (with good teaching) and the organisation (with thoughtful supporting structures).

The New Zealand Council for Educational Research has had a focus on workplace learning for the past five years. We have studied good practice in New Zealand workplace learning in industries such as horticulture, building and construction, tourism, and aged care. We've also conducted an international research review on learning in a wide range of workplaces – from banks to building sites, schools to science laboratories, and metal fabrication plants to hospitals. Looking across all the evidence, it seems there are two sets of dimensions involved for anyone thinking about designing, implementing or evaluating training programmes.

Organisation dimension

The first set of dimensions is about the structures and conditions needed at an organisational level. Putting these into place will mean thinking about conditions in relation to industry regulatory

frameworks and organisation-specific policies and practices that can prioritise and support learning.

This sort of commitment is not just written into documents. It is "made practical" with a dedicated person with the interest and authority to promote learning in the workplace. An important part of that role involves creating opportunities that learners can really take up.

Support also occurs through the provision of quality resources. Good workplaces can provide learners with workbooks and guides that are pitched at, and adapted to, the level of the learners involved. They also provide the key resource of time, and ensure that learning is not routinely pushed aside when other things appear to be more important.

Good workplaces also have mechanisms to reward learning success. These include public recognition, invitations to participate in more concrete problem solving with other experts (eg becoming part of the community of practice), development of career pathways, and informal acknowledgement of a "job well done".

Learning dimension

The second set of dimensions is about the learning and teaching. This will involve adopting and adapting strategies and practices specific to the learners. Good practice here involves workplaces having a clear idea of the skills and practices they want people to develop and not leaving the teaching to chance. They use lots of



The author puts her tramping training to the test on the Gertrude Saddle.

learner-to-learner and tutor-to-learner interaction. They also do things that lead to “real” learning: for example, the teacher or leader activates learners’ current knowledge and links it to new learning, and the teacher or leader develops learners’ understanding, rather than simply “covering” the material.

Good workplaces also “scaffold” learning – temporary support which is gradually dismantled to allow more independent problem-solving activity by the learner. They use mentoring by carefully selected experts or seasoned workers to help people move into the workplace culture, stay in the job, and learn tricks of the trade.

Interdependencies

We developed the tables on pages 13 and 14 from the

research evidence. It is designed as a series of principles linked to each of the dimensions. These principles can be adapted to your specific industry, workplace, and workers.

What really gives life to these principles is an appreciation of the interplay between them. In fact it’s best to think of these as critical interdependencies. For example, on its own, showing sensitivity to the learners’ pace and level (a dimension of teaching and learning strategy) is unlikely to produce relevant learning without an alignment to the needs of the workplace (a dimension of organisational structure and climate).

Similarly, there is little point in a company being committed to everyone’s learning (organisational), unless the learning that is on offer is

relevant to the learners, well designed and engaging, and technically relevant (teaching and learning).

There are also critical interdependencies within each set. For example, a company might invest in high-quality learning resources, but unless time is protected for learners to engage with the materials, the learning potential is limited.

The pace of learning is also important – trying to cover learning objectives without practice and feedback leads to fragile learning and to forgetting. While fast completion of qualifications may enhance the reputation of an organisation, this is not a convincing measure of what people truly understand or know or are able to do.

Opportunities

So there’s a kind of balancing act between the two sets of dimensions. Workplace conditions and structures help determine the character and quality of the teaching and learning that occurs or is possible. For example, the idea of “learner persistence” is not just an individual characteristic. It can actually be strengthened by workplace practices like mentoring. In turn, mentoring is only possible if there is a workplace climate that encourages questioning and discussion, and values and supports the mentors (for example, with advanced professional development, including for mentoring, and with formal recognition).

The concept of “affordances” is really useful here. It helps us to understand why people may or may not take up training and actually learn anything or change their behaviour. Affordances refer to the quality of opportunities offered by an organisation, such that they enable workers to perceive and take up training opportunities. You probably already know or suspect that learning isn’t just a question of filling up people’s heads like a petrol tank.

Studies in neuroscience and education increasingly show that learning is about making connections between ideas, and that making connections is best when people actually *do* and *be* (not just “know” from a book or a lecture).

So learning at work is really only as good as the opportunity to actively apply and develop competencies and *participate* in the workplace community. Similarly, opportunities to learn are really only as good as their affordances – their possibility for realisation or action. If you want to consider the quality of learning in your workplace, consider how well the workplace affords opportunities for learners to engage. This is central to understanding workplaces as learning environments, and environments where safety training can not just be delivered, but be effective.

Training access

There is research evidence that affordances are distributed quite differently across organisations, according to perceptions about people’s abilities (including people’s own perceptions of themselves), race, gender, status of work and the worker’s status (part-time/fulltime; contract/permanent, newcomer/oldtimer), and affiliations. Where people are positioned in the workplace affects the types of learning in which they engage. This also affects the extent and manner in which their learning and knowledge is recognised. Many studies have shown that the weaker the employee’s market position, the less likely they are to have access to training and career development.

Hospitals can be classic examples. They are knowledge-rich organisations, but they do not always prove to be the most educational because they can classify and frame the use of knowledge in ways that bar newcomers and those on the margins from participating. Television shows like Grey’s

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GLOBAL LEADERS
IN FIRST AID TRAINING

ORGANISATIONAL STRUCTURES AND CLIMATE

Table one

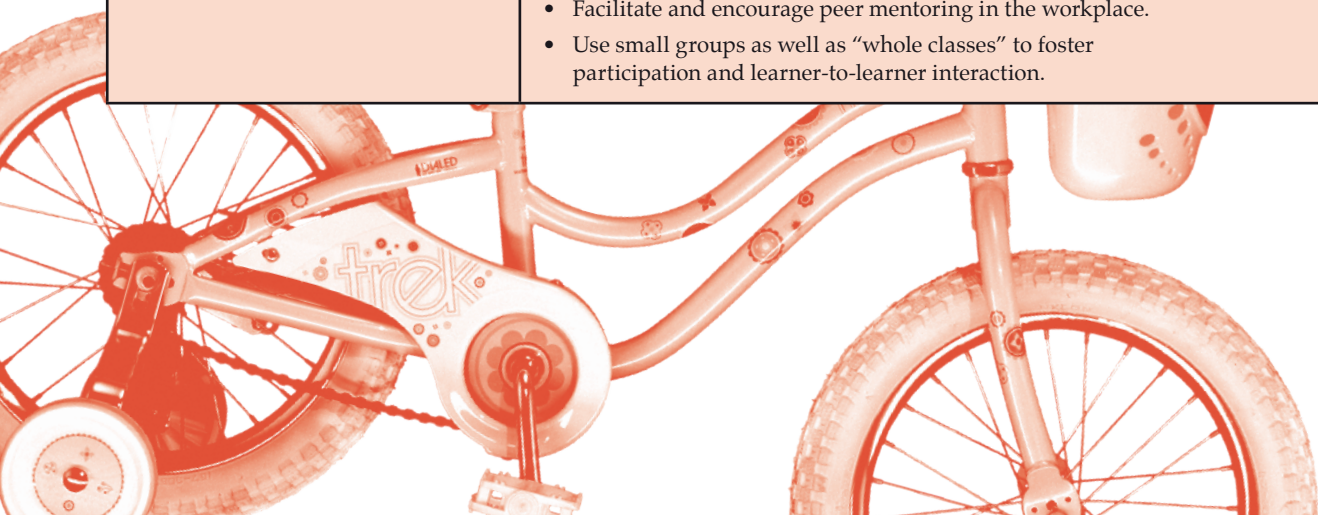
| Workplace learning works best when... | These ideas could be adapted for different workplaces: |
|--|---|
| <p>Workplace learning is aligned with or reflects the (desired) workplace culture.</p> <p>The strategic directions of the business, and the nature of its challenges and opportunities, are reflected in the aims and processes of workplace learning.</p> | <ul style="list-style-type: none"> • Ensure workplace learning reflects the level of complexity of the work environment. • Ensure the learning opportunities meet organisational needs and are relevant to the careers of the learners. • Co-ordinate a good fit between approach, content, and purposes (for example, for fun, self-esteem, learner's career, an organisational objective). • Use trainers to assist in the identification of links between individual learning and workplace. • Leaders or employers can seek feedback early and often on the impact of workplace learning. • Make sure learners know about the approaches, how they will be assessed, time frames, and how to get support. |
| <p>Learning is adequately resourced with the right people and the right tools.</p> | <ul style="list-style-type: none"> • Ensure facilitators have a sound knowledge of workplace learning methodology and the theories and approaches that underpin it, such as ideas from adult learning, action learning, and learning organisations. • Give leaders (employers, facilitators, and trainers) opportunities to learn more about how to facilitate effective workplace learning. • Ensure learning materials are well designed and appropriate for the learners as well as the organisation's needs. |
| <p>The organisation is committed to everyone's learning.</p> | <ul style="list-style-type: none"> • Involve everyone—employers, learners, trainers, other stakeholders – in the design and implementation of work-based learning. • Ensure that ongoing professional development and workplace learning are integral to everyone's work. • Give everyone access to learning (not just full-time workers or supervisors or newcomers). |
| <p>There is sufficient time for learning to be meaningful.</p> <p>Innovation and thoughtful risk-taking are encouraged.</p> | <ul style="list-style-type: none"> • Allow plenty of time for design and adaptation to specific organisational requirements and for learning to take place and "take root". • Allow time for learners to reflect, as well as practise, and have "time out" through off-the-job courses or networking. |
| <p>Opportunities to learn are part of everyday work.</p> | <ul style="list-style-type: none"> • Ensure learning is structured into everyday practices and relationships as well as the learning programme. |
| <p>Formal and informal learning are integrated.</p> | <ul style="list-style-type: none"> • Provide opportunities for workers to share expertise and learn from each other in their everyday work. • Understand that formal and informal learning may be relevant in different ways or at different times. |
| <p>Learning is recognised.</p> <p>Talent is identified and nourished.</p> | <ul style="list-style-type: none"> • The organisation should base its decisions on data, not opinion. • Trainers need to have regular, effective communications with employers to keep them informed of learner progress. • Some workers may be good mentors for other workers. |

Tables: Principles for successful workplace learning programmes (Source: Vaughan, 2008. *Workplace Learning: A Literature Review*. Wellington: NZCER)

TEACHING AND LEARNING STRATEGIES

Table two

| Workplace learning works best when... | These ideas could be adapted for different workplaces: |
|---|---|
| <p>The programme and teaching are sensitive to the learners' pace and level.</p> <p>Trainers take the "learning careers" and previous learning experiences of the learners/workers into account.</p> <p>Learners understand what the goals and processes are.</p> | <ul style="list-style-type: none"> • Take time to identify learning support needs and base teaching and learning processes around the learner's pace. • Assess learners and ensure that they are placed with others who are on the same level, as learners who are intimidated may have decreased learner motivation, attendance, and achievement. However, also include a mix of skills to allow for expertise to be shared. • Trainers can establish close contact with learners at the beginning of a programme to ensure they do not feel isolated or left out or left behind. • Train for long enough that a repertoire of activities, experiences, and opportunities can be developed to build and refine skills. It is the length and potential diversity of learning experiences that create the understandings which underpin quality. |
| <p>It is built upon the idea of lifelong learning.</p> <p>Learners are engaged and have some ownership over the goals and processes.</p> | <ul style="list-style-type: none"> • Trainers should reflect on their own actions in facilitating learning and encourage critical reflection in learners. • Trainers can model lifelong learning by modelling their approach to new tasks for learners and making transparent the processes of learning (including any frustrating parts of the learning process). • Recognise learning in ways that promote career progression rather than skill acquisition related only to one task. • Involve learners in setting the goals and feeding back learning and ideas into the organisation. • Learners have opportunities to participate and use their knowledge in the organisation. |
| <p>The learning is relevant.</p> <p>The learning occurs in the context in which it will be used.</p> | <ul style="list-style-type: none"> • Ensure the learner is set measurable targets for improvement. • Involve learners in their learning process by gaining feedback on their experiences and on the topics that motivate and interest them. • Involve learners in solving real-life organisational problems and issues. • Off-the-job learning is scheduled so that it does not interfere (or interferes as little as possible) with business. |
| <p>A flexible range of pedagogical approaches is understood and used appropriately and thoughtfully.</p> | <ul style="list-style-type: none"> • Use action learning cycles: planning for action; taking action and testing out plans; reflecting and analysing outcomes; and refining plans and repeating with refinements. These cycles are an effective way for learners to use self awareness to help develop new knowledge, skills, and attitudes. • Use and create networks (for example, conferences, virtual communities) to get new ideas and build community within the organisation and with outside organisations, industries, and skilled workers groups. • Facilitate and encourage peer mentoring in the workplace. • Use small groups as well as "whole classes" to foster participation and learner-to-learner interaction. |



Anatomy often show these sorts of situations, where surgical interns face intense pressure to quickly accumulate knowledge and hours of medical practice while simultaneously being subjected to a seemingly impenetrable hierarchy that rations, and sets up competition for, learning opportunities.

An analysis of science knowledge used in six different industry settings (Duggan and Scott, 2002) had similar findings. Workers lower down in organisational structures were mostly required to work to strict protocols that were intended to standardise procedures and minimise errors. Because workers had limited understanding of scientific “concepts of evidence” that underpinned these protocols, they lacked understanding of the significance of protocols, and did not necessarily recognise the potential impact of any breach of protocols.

By contrast, as employees worked their way higher up in organisations, they gained holistic big-picture understanding of why things were done in certain ways and became better at problem solving. More and more workplace learning studies are showing that workers in all occupations need big-picture knowledge so they can develop problem-solving “muscle” that contributes to business, provides more work satisfaction, and eliminates unsafe practices.

Of course, people make mistakes. Novices do it more frequently or with greater consequence, but even experts do it. It’s a prime concern for the organisations we have worked with that use heavy machinery, work within a tight regulatory framework, or are entrusted with customer safety.

Research suggests that overly restrictive environments, where people cannot practice and learn, or punitive environments where people cannot easily share their practices or concerns, are very unlikely to change industry or individual behaviour.

However, adapting or giving life to the principles derived from the organisational and teaching/learning dimensions in the table can set up the conditions and practices to help people minimise mistakes. It also sets up a way for people to reflect on, and learn from, mistakes.

Reflecting on errors

Much research shows *reflecting* on mistakes is essential for correcting false assumptions, and a helpful start for exploration of alternatives. It’s a form of experiential learning – one of the most powerful forms of learning – and it is particularly relevant for professional learning. It’s not just an individual activity either. It works best as a social activity and fits well with asking for, and receiving, feedback.

Research shows this doesn’t necessarily spontaneously happen; it needs to be structured and deliberate. It also needs not to turn into a case of novices simply replicating what experts do – that breeds conservatism and potentially more mistakes.

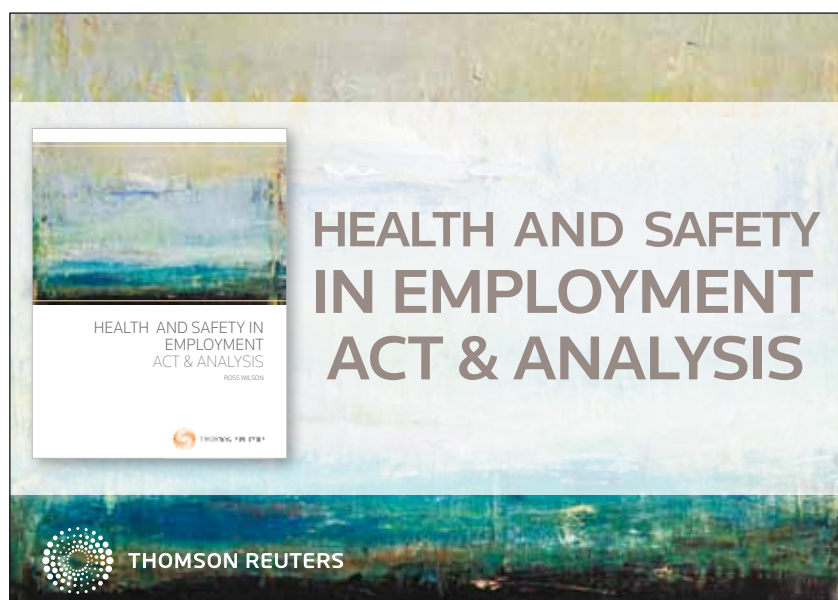
A study of bank client advisors in Germany provides a nice example of using reflection to learn from mistakes. Not surprisingly, the researchers found that a psychologically safe environment was key. The company created the right conditions from the start by taking a positive attitude towards errors. It used its communications systems to openly and

PUNITIVE ENVIRONMENTS WHERE PEOPLE CANNOT EASILY SHARE THEIR PRACTICES OR CONCERNS ARE VERY UNLIKELY TO CHANGE INDUSTRY OR INDIVIDUAL BEHAVIOUR.

consistently refer to mistakes as “situations that provide opportunity to look back and think about causes and consequences”. Bank client advisors were encouraged to discuss and reflect on their work processes so they would be able to recognise errors when they happened. This also helped them to feel that they could cope with errors and believe that they could be fixed. Supervisors and advisors and other colleagues formed teams where errors could be safely discussed and assumptions could be surfaced. So everyone became a kind of resource for each other.

Think about how you can build reflective practices into the business so that training programmes on safety can be maximised and sustained long-term.

Karen Vaughan is a senior researcher with the New Zealand Council for Educational Research.



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