Train them less; support them more

The case for integrating online learning with performance support

Introduction

In order to survive in an increasingly competitive and global business environment, organisations must be able to constantly renew themselves; to renew systems and processes; to provide ever improving profitability and customer service; to find new products to satisfy customers who now have a surplus of choices; and to find new markets in order to exploit the new products and technologies that they develop.

'Organisation renewal is difficult to achieve. The vision and drive of the CEO will only take an organisation so far.'

Organisation renewal is difficult to achieve. The vision and drive of the CEO will only take an organisation so far. Unless the whole organisation, which means the employees and management alike, galvanises behind the vision and strategy, it will fail.

Often, computer systems are used as a vehicle for introducing organisational change. The new systems embody the new and improved business processes. The organisation's business rules and policies are built into the way the software works, apparently removing the inconsistency that occurs when it is left up to individuals to interpret and act on policies and procedures. By configuring the system to enforce these policies and procedures, it will then process efficiency and compliance, and hence improve employee productivity. Customer satisfaction will follow. Or so the business case for the new systems often opines.

At the end of the day, however, the success of any organisational renewal program and the investment in the systems that underpin it depends on people – the employees – and their capacity to:

- overcome the natural human reactions to change – the stress and anxiety that often lead to an almost pathological resistance to the change
- absorb the nature, scope and reason for the change
- operate in the new environment, efficiently, effectively and compliant with the new processes, procedures and within the rules that govern them.

When organisations embark on a transformational change program, there is usually a change management strategy, with resources and budget applied to supporting the change. Typically, the change management program focuses on the first of these. If ability to operate in the new environment is considered, then it is often limited to pre-implementation end user training. This is predictable, given that the change program in many cases is run as a project; with defined success metrics and a defined timeframe that ends on 'go live'. No matter that the pre-implementation training won't be enough to sustain post-implementation end user support requirements due to system enhancements, staff turn over or the need to cross-skill and up-skill.

This project-based approach to organisational change inevitably leads to an undue focus on pre-implementation training, and insufficient emphasis on post-implementation support. With the training course a distant memory, the employee faced with a specific problem on the job that they don't recognise or remember how to solve is left with little choice other than to guess, ask a co-worker or call the helpdesk. For the organisation that justified the process change on the productivity gain and process improvement it would bring, each of these choices is far from optimal.

The best outcome for the organisation is that the employee faced with a new or difficult problem on the job has access to the information needed to be able to solve it, and at that moment can take related training to reinforce and extend their new skills. If the organisation can automatically record that the employee has completed the training then it can begin to map training results and competency achievement across the organisation.

This approach to organisational change recognises the limitations of traditional training methods and the need to support people on the job, at the moment of need. It is based on an understanding of what motivates adults to learn in the first place, and how reliable memory pathways can be created.

Learning from how children teach themselves to read

That pre-school age children can learn to read is an example of the extraordinary human capacity for learning. As we look back to how we helped our own children to teach themselves to read (because that is almost surely what happened; they taught themselves with the support of their teachers and families), there are several aspects of the experience that have relevance to supporting adults learn in an organisational context.

In a prior life, I was involved in the educational book publishing industry. My company published everything from elementary school mathematics and reading programs to university textbooks in physics and accounting. There were fierce debates between the various schools of thought in the area of infant literacy education. The whole language proponents argued for 'real books' and 'language immersion', while the 'old school' phonics proponents pushed for memorising sounds, sounding out words correctly before moving on to sentences, and then paragraphs, and so on. However, common to both was the notion of 'attack skills' – the self-confidence and strategies needed to 'have a go' at reading. I could relate this to my own experience as a parent, listening to my children reading storybooks, sounding out some words, guessing others from the context of the story or the picture on the page, or simply skipping over words they didn't know.

Schank (2002) points out that children and employees alike learn because they have a goal that is of interest to them. While children might learn to read because they want to enjoy books more, employee goals often relate to doing their jobs better so as to advance their careers or earn more money. In an organisational sense, we want people to learn so that they can acquire the competencies needed to reliably and consistently perform their jobs. Much of the training delivered as part of organisational change management programs is focused on core competencies. But unless the training resonates with employees' personal goals they are unlikely to embrace the training and learn from it. In other words, unless the training is meaningful to the employees then they are unlikely to learn from it.

The requirements for children to learn how to read include:

- attack skills that give them the self-confidence and strategies to try to read by themselves
- a safe environment to experiment, fail and try again.

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Employees faced with business process change and a new computer system have the same requirements. The on-the-job support and training we provide employees with needs to give them the safe environment and confidence to practise their skills and try to solve problems themselves.

Remembering how to remember

We train employees so they will be able to remember how to respond effectively to the situations and cues they experience on the job.

Scriptlets and expectation failure

Schank introduces the notions of *scriptlets* and *expectation failure* as central to understanding how adults learn and acquire skills. A scriptlet is a model of how the world, or a small part of it, works. Scriptlets are generalisations, formed through repeated experience, and stored in memory. It is similar to Senge's (1990) notion on a *mental model*. Often, scriptlets are buried deep in the sub-conscious mind. We don't know what we know until faced with a situation that triggers a memory.

When faced with a problem, the human mind assesses whether it matches one of the scriptlets stored in memory, and if so responds according to what the scriptlet suggests. When the result is not as expected, the person experiences expectation failure, which is a trigger to update the scriptlet to account for the failure, or create and store in memory a new scriptlet for the newly experienced situation.

In performance support terms, Schank's scriptlet is like a procedure (eg a procedure for creating a new customer record in a computer-based accounting system). The electronic performance support system (EPSS) needs to capture the scriptlets that exist in the memories of its skilled workers and document them in a way that all employees can benefit from.

Once the scriptlets of the most expert workers are documented in the EPSS, training can focus on providing other workers with the attack skills to find the correct scriptlets and the opportunity to practise applying them until they, too, have become ingrained memories.

Use it or lose it

Thalheimer (2002a) focuses on how to use e-learning to get employees to the point where they can recognise a work-related problem or requirement ('I remember seeing this problem/issue before') and where they know instinctively how to respond ('I remember solving it in this way'). This requires building into long-term memory the situation cues from the work environment and the learned actions that will ensure a satisfactory response.

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Thalheimer argues that the way to achieve this is to ensure that the learning situation is as close as possible to the actual work environment, and that it provides the opportunity to practise repeatedly until the required learned actions have been ingrained in long-term memory.

Much as a champion tennis player practises a particular stroke over and over until it happens instinctively, at the right time and without conscious thought, effective action learning should focus on training the learner to know how to respond through an appropriate level of realistic practice.

Training must assist users in learning how to remember information to support themselves on the job – the post implementation strategy. Training should not be a one-off event but an ongoing activity that supports and raises user competency by building the necessary memories.

The importance of scenarios

Both Schank and Thalheimer conclude that the most effective way to support adults learn is to provide exercises that are based on real life situations and data. Both point to the importance of simulation-based exercises and questions as the way to ensure learning that is meaningful enough to the trainee that it will be successfully stored in their long-term memories.

While Schank proposes simulation-based training, Thalheimer (2002b) and Kindley (2002) argue that the high cost of developing fully-fledged simulations and the difficulty of customising them to a specific organisation's needs militates against their widespread use. Instead, Thalheimer proposes a way of developing *simulation-like questions* that can be incorporated into more traditional online learning courses to provide similar results at a fraction of the cost. Kindley describes the approach as *scenario-based e-learning*.

A simulation-like learning exercise is one that presents a realistic situation and a choice of plausible behavioural choices. In this way, the scenario (the learning situation or objective) simulates the real world (the performance situation) and gives the learner the opportunity to practise remembering and applying the correct performance behaviours. By providing meaningful feedback to incorrect choices, the learner is presented with expectation failure as well as the opportunity to modify the behaviour until the correct choices are ingrained in long-term memory.

From learning to performance

'Providing resources at the moment of need to learn is among the highest leverage activities that can be employed.' (Gery 1991)

In her seminal work that coined the term *electronic performance support system* or *EPSS*, Gloria Gery (1991) identified that adults learn best by *doing* things, because at the moment they need to do something they naturally have a heightened interest in the task at hand, the situation and the related concepts. 'Providing resources at the moment of *need* to learn is among the highest leverage activities that can be employed.' (Gery 1991 p. 20) Further, she points out that 'in order to become skilled or proficient at anything, people must have sufficient practice in actually doing the task… Knowledge without practice rarely, if ever, translates into skill or specific behaviour.' (Gery 1991 p. 21)

Thalheimer picks up on this theme. His work points to the improved retention of knowledge when it is presented in the context of the on-the-job situation, and he argues therefore for ensuring the learning situation is as close as possible to the performance situation through the use of life-like simulations and scenario-based questions. (Thalheimer 2002a)

Technology for organisation learning and competence achievement

A learning management system (LMS) is a computer program for managing and tracking an employee's access to and use of training events and online learning materials. 'An LMS is an infrastructure thing, not an e-Learning strategy.' (Gery 2002b)

A learning content management system (LCMS) is a computer program for creating and storing online learning materials that can be launched by an employee through a LMS.

An EPSS is an online system that has 'an explicit goal of supporting work performance and thinking' (Gery 2002a p. 472). It provides an employee with the business processes, procedures and related information they need in order to perform competently in their job role. It provides moment of need support, usually context sensitive with the computer system(s) the employee uses on the job. It provides support across multiple software applications and manual business processes alike, providing a link between what the user was doing at the moment they realised they needed assistance, and what they should do next. The

EPSS should be able to identify the user and deliver the information that is specific to the particular employee and their job role.

At the *Business of e-Learning* industry workshop in Washington DC in April 2002, Elliott Maisie observed that many organisations had reported startlingly low levels of employee use of the online learning materials and courseware they had purchased and made available on the organisations' intranets. The dictum 'build it and they will come' had been shown to be untrue, and Maisie concluded that this indicates that the *invitation process* for current e-learning offerings is flawed.

Resolving the invitation process problem

Once an organisation's business processes and procedures are documented and available online in an EPSS that can filter what users see based on their job role, it is possible to think of individual employee competence as the employee's ability to successfully perform the business procedures specific to their job role. By integrating the learning material (such as scenario-based questions) into the business procedures, the EPSS becomes a powerful online learning platform. By tracking employee progress through the procedure-based exercises they need to complete in order to achieve and prove competence, the EPSS can integrate with a learning management system (LMS) to provide a comprehensive map of organisation learning and competence achievement.

In this way, the EPSS also provides learning materials at the moment of need, context sensitive with the performance need, and therefore also at the moment of learning need. Organisational learning moves from being a training event to which employees need to be invited, to something that happens automatically as employees seek assistance on the job from the EPSS. Thus, the need to 'invite' employees to undertake training is overtaken by a process where learning is 'pushed' to employees at the moment they need to learn, because they have a need to *do*.

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Integrating performance support with online learning

Panviva's experience in developing the Mentor solution shows that a well designed EPSS can provide an ideal platform for delivering online learning because it:

- delivers performance-related learning content in the context of doing the job, at the moment of learning need
- brings the learning event and the performance event together in time and location
- provides the learner with the opportunity for repetitions, drill and practice (adults learn best by doing).

In order to achieve these objectives, an EPSS must have the following functionality:

Cross-application support and learning

The EPSS must reside within the business process, without disrupting it. This means it must be context sensitive with the multiple computer systems employees might need to use to perform their jobs. In this way it becomes the one place employees automatically go for assistance and learning. Instead of having to learn how to use the online help systems of each of these systems and then work out the manual steps in the process themselves, the EPSS seamlessly links all elements of the process together, providing support, learning, competency assessment, reference information and the opportunity to provide feedback to the process owner.

Role-based filtering of content

Organisational roles define the competencies required across the organisation. The EPSS must enable creation of roles, either directly within the EPSS, or by loading them from another system such as a learning management system or the organisation's human resource management system. It must be possible to assign individual employees to one or more roles, and in so doing assign to them their competency requirements. The EPSS must be able to identify a user, link them to their role(s) and display the content and learning pathway that is relevant to them based on their role.

Support development of the user's memory pathways

Functionality such as *user notes* to allow end users to attach their own notes to the content, so they have the benefit of these personal experiences insights next time they access the content. In this way, the EPSS acts like the yellow *PostIt! Notes* one sees stuck on computer monitors as reminders, supporting the user's development of useful and reliable memories.

Re-use of performance support content to create learning content

The EPSS must have document version control to allow the trainer to create multiple versions of the procedures that users need to be competent in performing by adding learning content to the procedure versions. In this way, multiple exercises (drill and practice) can be created for the procedure *Create new customer record*, each with a specific business scenario and assessment items.

Authoring and tracking assessment items

The authoring environment in the EPSS must allow courseware developers to create assessment items (scenarios, questions, quizzes, etc.) directly in the learning content. As users complete an assessment, the EPSS must be able to capture the result and use it to determine if the user has achieved the required competence, in which case allowing them to access the next item in their learning pathway. At any time, it should be possible to generate reports that show the status of each employee in their learning pathway and therefore their achievement of competence.

Learning pathway definition

Each employee has specific competency requirements defined by their role(s) in the organisation. The EPSS must enable specific learning content (versions of procedure documents) to be assigned to a role to create a role-based learning pathway that is specific to each employee based on the roles they belong to.

Capture knowledge at its source

When an organisation distributes its processes, procedures, reference information and organisation-specific training materials to employees it is pushing *information* to them. When it provides a mechanism for employees to contribute their experiences on the job and reactions to the information, then it is capturing the organisation's *knowledge* that otherwise walks out the door each night. The EPSS becomes a core element of the organisation's knowledge management strategy when it captures knowledge from employees and incorporates it into the information it provides. To achieve its role in the knowledge management strategy the EPSS must provide multiple ways to capture employee feedback, observations and suggestions so that it can be automatically routed to content owners for assessment and integration with the EPSS content.

Workflow to alert content owners of changes

It is likely that different people in an organisation will be responsible for maintaining performance content (process and procedure documents) and the learning content that is based on it. For example, a subject matter expert in the customer service department may be responsible for maintaining the procedure, *Create customer record*. A trainer in the HR department may be responsible for creating online learning exercises about maintaining customer records by creating versions of the procedure, *Create customer record*. When the subject matter expert updates the procedure in the EPSS, the trainer should be automatically alerted to the change so that he or she can ensure the change does not adversely impact the learning exercises based on it.

Ability to integrate with other systems in the performance/learning ecosystem

The EPSS must be able to pass the learning results to other systems such as an LMS or an HR system that records employee training results. This may be 'out of the box' functionality, or a configuration setting to allow passing of records.

Conclusion

So much of what has passed as e-learning has been little more than delivering traditional, paper-based learning materials online. But this ignores the fact that classroom-based learning is of limited effectiveness, especially in relation to the sorts of skills and competencies employees in today's work environment need to master.

Employees learn best by doing; by attempting to resolve an issue or problem on the job, forming a memory of how to solve it (and how not to) by failing, trying again and eventually succeeding. To be successful, e-learning technologies and methodologies need to adopt this approach to adult learning.

Organisations provide their employees with training in order to enhance on the job performance. Electronic performance support systems, as the name suggests, have the same purpose. The most effective way, therefore, to support organisational learning and hence performance, is to combine learning content with performance support content, so that learning can occur at the moment of performance need.

When learning and competence achievement occurs as a consequence of successful on-the-job performance, the learner's memory of the correct behavioural response to a performance need is stronger and more lasting, and organisational performance and learning is enhanced.

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