Instructional design and workplace performance

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About five years ago my wife started to teach herself word processing. She decided to use a well known and highly recommended system. She didn't get past page 6 in the instruction manual.

Weeks later she discovered that there was a simple instruction omitted from the bottom of page 6. By that time she'd learnt another system. The missing instruction was "press return". But because my wife wasn't "computer literate" at the time, she didn't know to "press return". And because the author of the manual assumed she would know that, she's never used the original system - and probably never will.

Most of us have experienced this sort of frustration at one time or another; especially with written instructions for gadgets of some sort. For example, a 1990 study found that only 3% of adults in the USA who purchased video recorders could actually use them successfully 6 months after purchase.

These examples reflect instructional design inadequacies. But they also raise questions about instructional design and successful performance, especially workplace performance.

In Australia, governments are spending vast amounts of money supporting "training" and encouraging employers to spend lots of company funds for the same reason. Assuming that training should lead to improved workplace performance, instructional design will become more and more important. Sound instructional design, whether liberal, conservative or somewhere in between, is essential for skill development in the workplace.

But it isn't the only way to develop workplace skill. Trial and error for instance, despite its gross inefficiencies, has been used successfully for

centuries. I believe that instructional design in the workplace has some special aspects that need to be addressed.

Instructional design in the workplace

- concerns total performance; not just discrete skills
- can only ever be a means to an end
- must be performance and outcome centred
- may be regarded as successful only when job performance is measurably and demonstrably improved
- should occur only when performance analysis clearly identifies instruction or training as a desirable method of performance improvement
- should define the criteria for learner success and specify how the criteria will be met and measured
- should enable learners to effectively perform in the workplace - not just in the classroom
- should be concerned primarily with developing skills that are used regularly and frequently
- should contain effective incentive/reward mechanisms and procedures designed to satisfy learners
- can only be truly efficient when it is independent of time constraints
- should contain specific, definitive and unambiguous entry and exit criteria for learners
- should permit learners to enter and leave the design at any point, provided they meet the entry and exit criteria for that point
- should include techniques to enable learners to monitor their own progress and take corrective action where necessary
- should be designed to meet the needs of the least able learner and use entry criteria to determine entry point of other learners
- requires rigorous empirical testing before being adopted for widespread use.

Instructional design in corporations

The corporation, whether private or public, is not an educational institution.

In the educational institution, superior instructional design will lead, hopefully, to superior education: what the institution exists to achieve. Superior instructional design leads to more effective and efficient learning. In the educational institution, superior instructional design is only a step or two away from superior education, the final function of the institution.

The corporation exists to achieve business results and to maintain itself; however those two objectives may be defined. Good instructional design is vitally important for both objectives. But the relationship is more tenuous

than in the educational institution. The link between instructional design and the objectives of the corporation is much further removed than the same link in the educational institution.

And corporations prevail regardless of the quality of instructional design. Few educational institutions will prevail with instructional design which doesn't lead to educational success.

For example, corporations can avoid training by hiring "trained staff". This makes instructional design redundant. In the private sector, a corporation may have a product or service which is dominant in the marketplace and supported by brilliant marketing. The public corporation may enjoy a monopoly or provide an essential service. Either private or public corporations may decide that "training" isn't a cost effective intervention.

In all these cases, both private and public corporations may be extraordinarily successful without so much as a slight nod in the direction of instructional design. Furthermore, the best instructional design in the world may lead nowhere in the corporation because of other issues: poor pay and conditions, inadequate systems, performance punishing, government regulation, economic conditions, under capitalisation and lack of customer support to mention a few.

Some corporations also fail to appreciate the value of their expert performers and ascribe their accomplishments to good fortune or individual flair.

Instructional design and corporate systems

The instructional design/improved performance link must be very clear if instructional design is to be valued in the corporation.

The instructional design may be elegant, scholarly, rigorous and professional. If it doesn't lead to improved workplace performance it's of little value to employer or employee. Instructional design which leads only to improved skill without improved overall performance is inadequate instructional design.

Instructional design in the corporation is part of a broad and diverse system. It should lead to demonstrable and measurable skill improvement. But skill development doesn't necessarily lead to improved overall on job performance improvement and better business results.

Instructional design should be identifiably integrated into the broad business result and performance system. And it should allow for deficiencies in that system. For instance, undertaking instructional design

for training that is unnecessary, inadequate or irrelevant would be opposed by professional performance technologists.

Within conventional philosophies of instructional design the emphasis is, rightly, on what the learner can know or do. Within corporate frameworks the emphasis is on what the learner can know or do to enhance the objectives of the corporation.

William Blank raises the same issue about so called competency based training. Blank says

> Every task, every objective, every test item, every slide, every module, and every instruction sheet should pass the test: Will this training activity or learning resource contribute to the trainee's competence out there on the job? If we cannot answer affirmatively, we have no business including it in our training program.

Challenge to conventional frameworks

Instructional design for the workplace also requires review of conventions in evaluation and transfer of training. The value of the design in the workplace stands or falls by the "success" or "failure" of the learner on the job. This makes evaluation a clear cut affair: can the learner perform effectively on the job or not? That may also mean that the instructional design needs to be evaluated against the performance of the work group, business unit and organisation - integrated evaluation.

Corporations aren't very interested in elegant instructional design that works superbly in the instructional setting but isn't robust enough to survive workplace rigours. Sound instructional design in the workplace must be primarily concerned with on job performance. And it includes consideration of workplace constraints. Transfer isn't an issue. If the learner is unsuccessful on the job the instructional design is deficient.

In the corporation, conventional approaches to transfer and evaluation of training are of little value to the instructional designer.

Instructional design and performance technology

One path worth exploring is performance technology. Performance technology emphasises up front analysis of performance problems and focus on accomplishment rather than behaviour.

Performance technologists also regard workplace environment as a critical element in effective workplace performance. They claim that instructional design must consider workplace environment to be effective at work. And they see training and instructional solutions to workplace performance problems as likely to be effective in no more than 25% of cases. People

such as Gilbert, Rummler and Harless who first proposed performance technology as a discrete discipline did not come from conventional educational backgrounds.

Thomas Gilbert worked with Skinner for many years. He publicly acknowledges his debt to Skinner but sees his work as a new direction rather than an extension of Skinner's work. Geary Rummler worked with Gilbert and views performance from a systems perspective and has an engineering and business background. Joe Harless started in medicine, graduated in psychology and developed "front-end analysis" for analysing performance problems, especially for instructional designers.

Gilbert, Rummler and Harless are concerned with performance - what the trainee can accomplish and be seen to accomplish and be measured accomplishing - rather than behaviour - what the student does. As Gilbert says "Accomplishment is what you leave behind: Behaviour is what you carry with you". Their concepts and techniques have much to offer instructional designers charged with designing instruction to improve workplace performance.

Performance technology emphasises up front analysis, development of learner supportive and fail safe systems, explicit objectives, precise feedback, reward and incentive systems that enhance and reinforce the achievement of objectives and of course, successful accomplishment. This approach may be at odds with conventional instructional design with its emphasis on the classroom acquisition of knowledge, skill and, perhaps, attitudes.

The old saying about "training changing knowledge skills and attitudes" won't impress the performance technologist who will ask "But can the learner accomplish the overall objectives of the job consistently and repeatedly to meet the specified performance standards demonstrably and measurably?"

Standards in everyday performance

Changes in attitudes, extensions of knowledge and increases in skill are simply insufficient if they don't result in the job being done better, faster, safer, cheaper, smoother, without error - and so on - to a standard that enables the operator to self correct with minimum supervision and replicate "expert" performance as normal.

This is not as odd as it seems. Probably 75% of the Australian car driving population reach such a standard as motorists. Many employees, whether "blue" or "white" collar, meet these sorts of standards 90% of the time in their daily work. Most adults reach these standards with home or leisure gadgets such as cameras, dishwashers, motor mowers, food processors,

microwave ovens, video and tape recorders. And children reach the standards constantly with computer games and similar gadgets which baffle and even frighten adults.

The most interesting feature about our success with gadgets and machines is that most of us seem to enjoy using gadgets that enable us to succeed. And most successful machines and gadgets reduce the likelihood of human error and increase the likelihood of successful performance. Machines that demand high operating skills deter non-experts.

For example, an experienced and highly skilled professional driver would find driving a 1928 Bugatti an exhilarating experience. For most of us, driving such a car would be a chore and probably life threatening to boot! The family sedan with automatic transmission, power steering, steel belted radial tyres and all the rest is a far more attractive and much safer option.

Instructional design and performance support systems

The concepts and techniques of performance technology lead naturally to performance support systems. The jargon may be new, but performance support systems have been with us for ages. The wheel is a performance support system. So is the camera, the printing press, the motor car, the sewer, the well and the stump jump plough as are aqueducts, grinding mills, computers, airline reservation systems, lasers and crowbars.

A performance support system is just that: a system that supports performance. Some of them, especially written instruction from manufacturers end suppliers to end users are often poor. Others, especially fail safe devices on dangerous machinery, are usually very good.

Most are somewhere in between.

Job aids are common examples of beneficial performance support systems, especially where they demonstrably enhance job performance. Performance support systems pose a major challenge to instructional designers. They wont go away. Their use will become more and more widespread.

Good performance support systems save time, resources and money because they eliminate errors, reduce training and lead to successful accomplishment on the job. For the same reasons users of good performance support systems gain greater personal confidence and self esteem.

In the corporation, performance support is an attractive and desirable proposition. But to be fully effective performance support systems require quality instructional design.

The challenge for the instructional designer in the workplace is to ensure that high quality instructional design is built into performance support systems. That will mean reassessing the value and relevance of many instructional design issues near and dear to the hearts of instructional designers, especially those in educational institutions. But it will eliminate forever concerns about transfer of training. Both "liberals" and "conservatives" in instructional design could have what they want - provided that they showed that they could demonstrably and measurably improve workplace performance and accomplishment.

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