'Give your Games Guts!'

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Abstract
A ten-point guide to designing and producing enjoyable serious games that blend guided discovery & engaging practice with revealing, tracked assessments.

A summary of the presentation – what are we trying to achieve?
Oscar Wilde observed that "*we teach people how to remember, we never teach them how to grow*."

These words might have been written last week, not 100 years ago. The challenge we face today is *not* to try to fill the minds of our staff with facts and information but to help them develop appropriate skills and responses to the real situations they will face.

Nowadays 'Information' is free and accessible anywhere and at any time and with Google on your mobile phone you really don't have to remember specific facts until the moment you need them. The problem is that training for many organisations is still seen as an exchange of information from a knowledgeable expert (armed with a 200 slide PowerPoint presentation) to the minds of a room full of learners.

The subject expert on the one hand feels obliged to *demonstrate* in the classroom his or her vast catalogue of knowledge, acquired over many years. After all, they are *experts*.

And the *learners* in that classroom will stagger away with a mountain of course notes which will sit neatly on their bookshelf, to be left untouched, like all the others in their pristine white A4 ring binders …

But what are we really trying to achieve? All organisations need competent, skilled staff but how can we best develop and assess them? Certainly not by filling their heads with data; a 2Gb memory stick will carry and instantly recall far more information than any human brain.

How about imparting 'knowledge', equipping people to be able to recall information in an appropriate *context*? Well, this is more useful than a pile of raw facts but it still lacks the vital ingredient for competent performance: **judgement**.

For example, a technician has learned the function and purpose of every switch and indicator on a large equipment control panel. He has studied into the small hours and is now a walking technical manual. But what he lacks is the ability to *select and apply* this vast knowledge effectively in real world situations, calling on the skills and wisdom that underpin sound judgement and which only come with experience.

The role of interactive games
This presentation argued for a radical reduction in traditional ' information transfer' training sessions in favour of immersing learners in challenging, enjoyable 'practice environments', played against a set of clear rules and objectives and scored. In other words, *games*.

Before suggesting the key ingredients for effective learning games, let's consider some of the issues we should remember about our typical modern learner:

- They are impatient for results and get bored quickly
- They have high expectations, developed as they grew up in a sophisticated interactive world
- They love to compete, to be measured, to prove themselves
- Amusing, engaging experiences create lasting imagery and memories, readily recalled in future situations

For the *organisation*, interactive games deliver safe, cost-effective practice in otherwise hazardous, expensive or inaccessible tasks … anywhere and at any time. A good interactive game should serve a dual purpose: as a *training* tool to develop staff skills and judgement and as an *assessment* tool to measure their competence.

A brief summary of the 10 key ingredients suggested for effective games (each illustrated with working examples during the presentation)

1. Present realistic imagery
The graphical scenes in which the game is played must be of the highest quality to ensure they are believable and don't attract criticism. You need the game to be taken seriously right from the start. High quality 3D models provide stunning 2D views as well as the possibility of interactive journeys through the game environment.

If the environment already exists (for example, the inside of a vehicle) then 3D modelling will not be as cost-effective as photography. With a 360 degree lens and a modest digital camera, engaging interactive panoramas can quickly be built. They are also far easier and cheaper to update.

2. Pose job-relevant tasks
The game should pose challenges that are typical of their real world activities, not hypothetical examples that require huge leaps of imagination to relate the game tasks to their own jobs.

3. Challenge the learner
… to perform *well*, measured against *familiar targets* such as task completion time, responsiveness to changing events, parts or materials used and their cost, etc.

4. Immerse them immediately
Don't force learners through pages of preparatory reading or explanations before starting the game. Come in with a bang and get them started and *doing* something quickly.

5. Let the expert excel
Good games should allow people who already have competence in a task or procedure to demonstrate this without hindrance or unwanted prompting. Nothing frustrates people more than being patronised or guided when they are quite capable of handling the job themselves.

6. But support and guide those who need it …
The ideal model is to emulate the real world in which a learner would have turned to a colleague for guidance, a hint or a 'tip' on what they ought to examine or try next. Examples were shown of such 'incremental hints', where the learner receives increasingly more guidance each time they ask for it. All games should offer a 'Give up' button to allow the player a way out with their dignity intact rather

than persevering and failing with no end in sight. ‘Giving up’ should then be supported with an explanation of the actions that an *expert* would have taken to complete the task within the targets.

7. Provide access to workplace reference material
If the game is to simulate a real working environment, it should also allow the player/learner to use the support tools they would normally have available. Learning *where* to go (perhaps many months in the future) to find resources, and practising *how* to use them may be as important a part of the game outcome as completing the tasks themselves. Resources might include servicing and theory of operation manuals, a glossary of terms, intranet search tools, fault diagnosis programs, etc.

It used to be claimed that Albert Einstein saw no need to remember his telephone number since he could always look it up in the local directory … probably untrue (he would have scrawled it on a blackboard) but the *concept* is valid.

8. Give continuous feedback on game performance
Players perform best when they know exactly how they are doing against the target. Readouts of elapsed time, time remaining, parts cost, penalties incurred, etc. add excitement and challenge and are the spur to repeat the game to improve their score.

9. Record and report all actions and outcomes during the game
A full record of their score and all actions taken should be shown at the end of the game. This should include each item tested, adjusted or replaced, each time they asked for a Hint, each visit to the Library to refer to a manual, etc. These actions could each carry a *bonus* (eg: correct part replaced) or a *penalty* (irrelevant or unsafe action taken, 17 visits to look at the same manual, etc).

Using this rich recorded data, as an ***assessment*** tool the interactive game provides a far more revealing indication of both confidence and competence than traditional quizzes and other tests of knowledge.

10. Include the unexpected …
Use *impact* to create lasting memories with intriguing, unexpected events or incidents. Examples shown included equipment that explodes when unsafely operated or a fatal decision to return to a smoke-filled burning building terminating the game as the screen fills with smoke.

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