e-Learning 101

Bill Gibson & Daniel Goodwin

Stanhope 2009 - Oct 5, 2009

CANADIAN POLICE KNOWLEDGE NETWORK

Agenda

- Introductions
- What is e-Learning?
- Instructional Principles and Development Process
- Technology Requirements
- Support and Other Common Issues
- Sample Courseware Demonstration
- Question and Answer

CANADIAN POLICE KNOWLEDGE NETWORK

What is e-Learning?

CANADIAN
POLICE
KNOWLEDGE
NETWORK

What is e-Learning?

Industry guru Elliot Masie defines e-learning as:

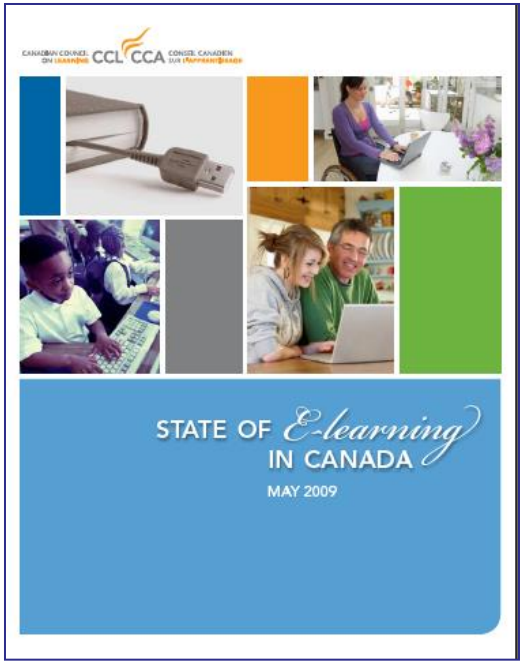
"the use of network technology to design, deliver, select, administer, support and extend learning."

CANADIAN POLICE KNOWLEDGE NETWORK

What is e-Learning?

Canadian Council on Learning *State of e-Learning* report:

"*The term e-learning has become an all-encompassing catch-phrase for the application of computer technologies to education - whether it occurs in face-to-face classrooms, blended and hybrid courses, mediated distance-education context or in online learning environments.*"



What is e-Learning?

- e-Learning has been around for ~20 years.

- e-Learning has evolved with technology
  - CBT to WBT to advanced simulation

CANADIAN POLICE KNOWLEDGE NETWORK

CBT vs. WBT

	CBT	WBT
	• Asynchronous • Standalone, runs on a non-networked PC. • Kiosk concept • Example: Mavis Beacon Teaches Typing CD or a video presentation	• Synchronous and Asynchronous • Distributed to connected users from central location, normally displayed in a web browser. • Example: Soft skill or theory-based course (World War I history)

CANADIAN POLICE KNOWLEDGE NETWORK

Online Learning

Advantages	Disadvantages
• Automation of central record keeping – real time reporting. • Updates are easy to distribute • Self-paced. • Can be synchronous or asynchronous.	• Bandwidth/connectivity can be a constraint • Infrastructure investment required to build distribution network. • Potential compatibility issues from multiple vendors.

CANADIAN POLICE KNOWLEDGE NETWORK

Blended Learning

- Blended Learning combines asynchronous online training with some form of synchronous training (either online or in person).
- This is a good approach where there is both a theory and a practical component to the training.
- Example: An online First Aid course with an in class practical testing component.

CANADIAN POLICE KNOWLEDGE NETWORK

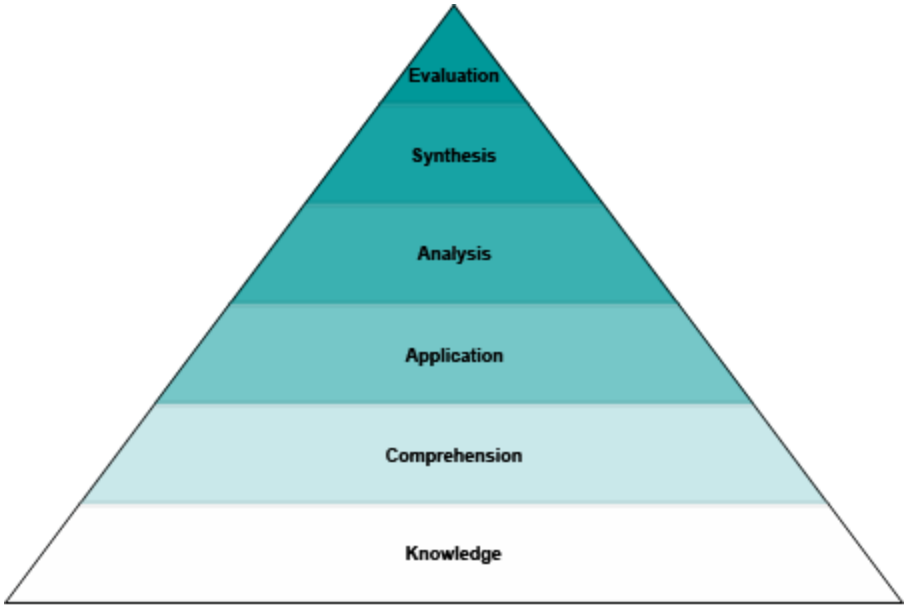
Instructional Design and Development Process

CANADIAN POLICE KNOWLEDGE NETWORK

Instructional Systems Design (ISD)

- Most e-learning is developed following the ADDIE model of ISD.

- Bloom's Taxonomy (six levels within the cognitive domain) and Gagne's Nine Events for Effective Learning are the most common instructional taxonomies used in e-learning.

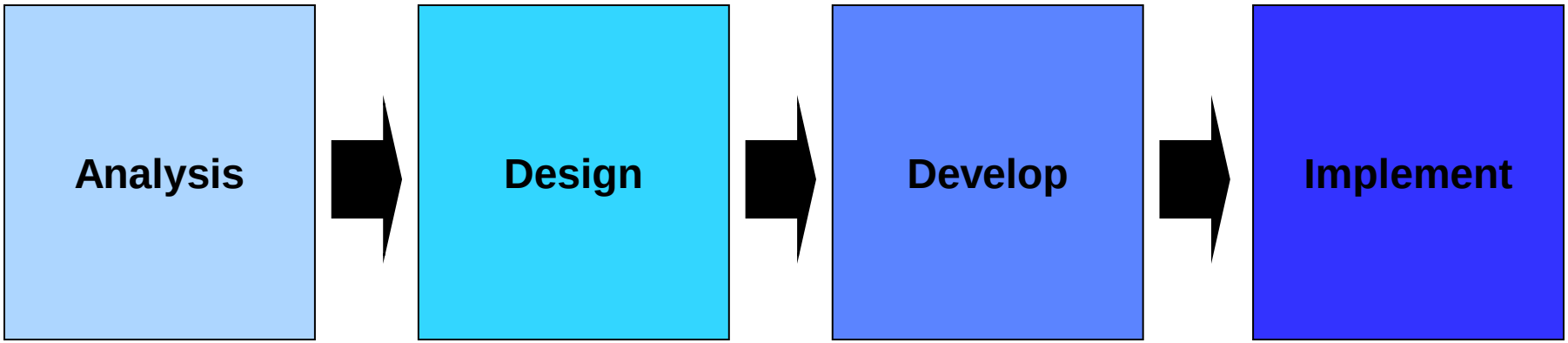


Bloom's Taxonomy of learning. Adapted from: Bloom, B.S. (Ed.) (1956) Taxonomy of educational objectives: The classification of educational goals. Handbook I, cognitive domain. New York ; Toronto: Longmans, Green.

CANADIAN POLICE KNOWLEDGE NETWORK

The Development Process

Working with the subject matter expert(s), CPKN's development team follows well defined processes and procedures to develop content, create the course, and implement courseware on CPKN's LMS.



CANADIAN POLICE KNOWLEDGE NETWORK

Analysis

- Discovery and Fact Gathering
  - Conversations with SME/Content Provider
  - Discuss wants/needs
  - Set expectations
- Project Estimates
  - Scope project, baseline effort and cost
- Clearly define project
  - Outline objectives, target audience, proposed content, challenges/risks, etc.

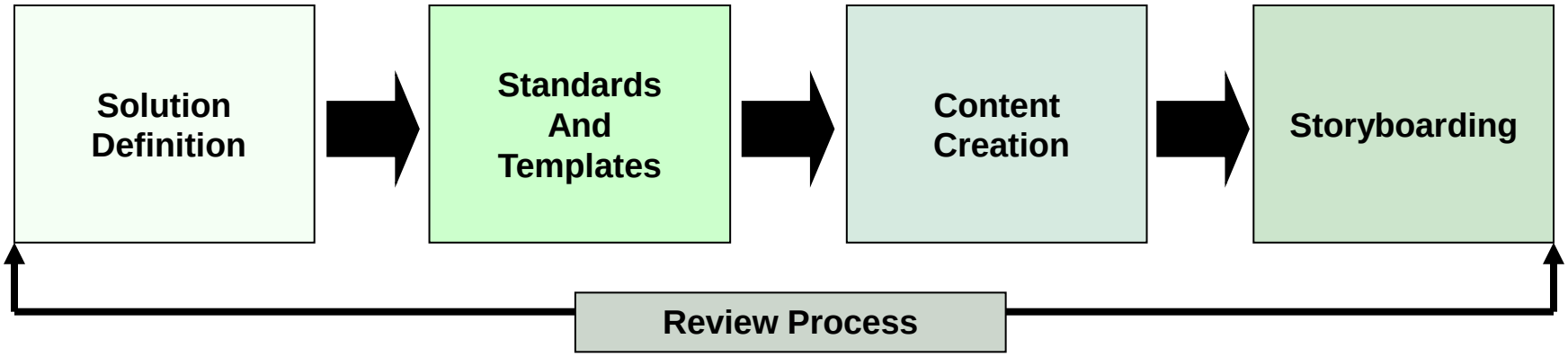
CANADIAN POLICE KNOWLEDGE NETWORK

Design

Objectives:

- Design engaging solutions that encourage quick and easy access to information
- Create solutions that will allow the learner to transfer newly acquired knowledge and skills to the job
- Enable learners to be successful

Primary Tasks:



Develop

- Use development tools to build course: photos, video/audio, illustrations, animations and activities. Assemble course from storyboards and assets.

- To target environment(s):
  - Browser: Internet Explorer 5.0 for Windows, etc
  - Plug-ins: Flash & Acrobat Reader
  - Screen resolution (800X600 or 1024x768)
  - System audio/video capabilities

Implement

- **Release to reviewers and final audience**
- **Revise as required after each release**
- **Potential release cycle:**
  - Subject Mater Expert review (for this course)
  - Peer review (peers to the course SME)
  - Pilot release (test group of real learners or approvers)
  - Full release (to target audience)

CANADIAN POLICE KNOWLEDGE NETWORK

Evaluate

- **Determine effectiveness of course through:**
  - Assessments
  - Surveys
  - Focus Groups
  - Third Party Evaluations

CANADIAN POLICE KNOWLEDGE NETWORK

The e-Learning Team

There are 6 primary functions involved in the creation of an e-learning product:

- **Instructional Designers/Writers**
- **Media Artists**
- **Web Developers/Programmers**
- **Quality Assurance**
- **Project Management**
- **Content/Subject Matter Experts**

Depending on the size of the project, individuals may play multiple roles.

CANADIAN POLICE KNOWLEDGE NETWORK

What does e-learning look like?

CANADIAN POLICE KNOWLEDGE NETWORK

What does e-learning look like?

E-Learning can take on many forms, styles or formats that include:

- Tutorial
- Scenario
- Simulation/Gaming
- Software simulation

CANADIAN POLICE KNOWLEDGE NETWORK

Tutorial

- Very similar to traditional self-paced print material
- Degree of multimedia enhancement varies greatly
- Best suited for content of a conceptual nature
- Interactive activities tend to be of low complexity
- Typically Bloom's Level 1 and 2
- Most common
- Usually best bang for buck

CANADIAN POLICE KNOWLEDGE NETWORK

Scenario

- Puts learners in real life problem solving situations
- Typically supported by rich multimedia such as audio/video, animation and/or illustration
- Allows learners to apply what they have learned
- Branching decision points allow for exploration of the best choice option.
- Typically Bloom's Level 3

CANADIAN POLICE KNOWLEDGE NETWORK

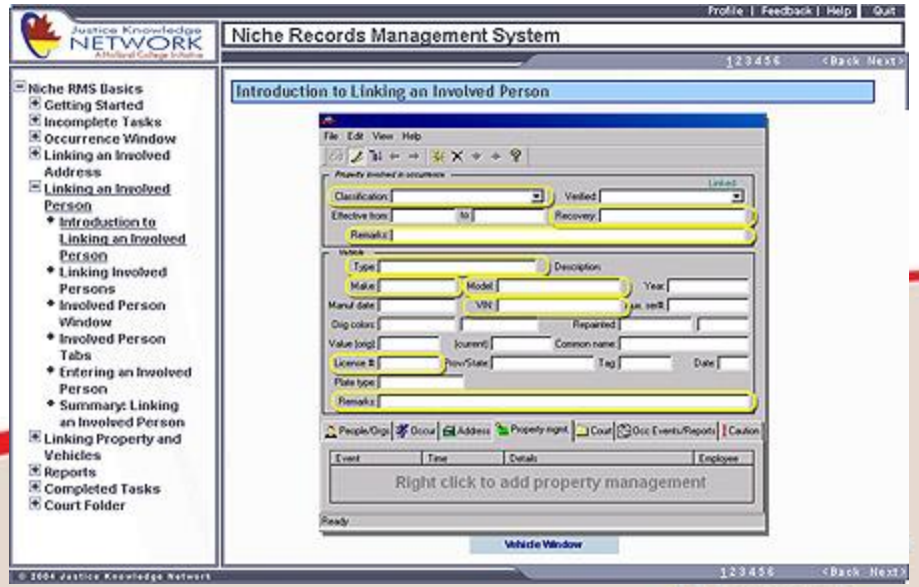
Simulation/Gaming

- Provides a safe environment to practice complex tasks
- Mirrors actual environments as closely as possible
- Multimedia rich
- Bloom's Level 3 and up

CANADIAN POLICE KNOWLEDGE NETWORK

Software Simulation

- Provide a safe environment to practice
- Reduced requirement for a special training environment
- Can be as open ended as required (free play to fully guided)
- Multimedia rich
- Bloom's Level 2 and up
- Hands on and visual



What are the Technology Requirements?

CANADIAN POLICE KNOWLEDGE NETWORK

e-Learning Development Tools

Rapid Development Tools • Adobe Breeze • Articulate	**Authoring Tools** • Adobe Authorware • Toolbook • Lectora
Traditional Web Dev Tools •Adobe Flash • HTML/JavaScript • Active Server Pages	**Software Simulation Tools** •Adobe Captivate (RoboDemo) • Firefly • OnDemand • Viewlet Builder

CANADIAN POLICE KNOWLEDGE NETWORK

Learning Management Systems (LMS)

Advantages	Disadvantages
• Portable content • Content independent of system (safeguard in the event of system/vendor failure) • Built in course catalog, enrollment, and reporting functions.	• Wide variety of systems available, each seems to be best suited to a particular situation (corporate, open portal, university) • Requires knowledge of standards to integrate content • Interoperability issues common

LMSs require a database to store user/course data as well as a web server from which the content is delivered.

CANADIAN POLICE KNOWLEDGE NETWORK

Learning Content Management Systems (LCMS)

Advantages	Disadvantages
• Less knowledge required to build courses • Few interoperability issues • Content development more rapid	• Difficult to customize • Significant investment required. • High barriers to changing the system (less portability) • Greater risk of losing content due to system failure

- Course content is input directly into the templates provided by the LCMS and stored within the system.
- Database structure is more complex.
- LCMS are typically weak on administrative side functions provided by LMS.
- LCMS and LMS may be deployed together.

SCORM (Sharable Content Object Reference Model)

- Driven largely by the US DoD who recognized the possibility of re-using content created for one branch of the military in another
- Incorporates the data specification of AICC (the previous standard)
- Adds suggestions for content structure and specifies specific meta-data elements supporting each course object.
- Built into many development/authoring tools (export function).
- SCORM is now the most common and widely used standard.
- CAUTION: The concept of re-use is the most appealing aspect of a SCORM approach, however in practicality there are a number of barriers to re-use that may negate some of the benefits of the business for the additional effort required.

CANADIAN POLICE KNOWLEDGE NETWORK

Typical Technology Needs

SERVER SIDE:

- Web server to deliver content
- Database server to store user information
- Ability to configure testing and production environments
- LMS/LCMS Software package

USER SIDE:

- Browser (IE is most common – still ~ 80% of internet users)
- Some plug-ins (Flash, Acrobat)
- Connectivity

CANADIAN POLICE KNOWLEDGE NETWORK

Support and Other Common Issues

CANADIAN POLICE KNOWLEDGE NETWORK

What Support is Required?

- Technical: Servers
- Technical: Desktops
- LMS Admin: Responsible for loading courses, granting user access rights.
- Help Desk: Access problems are common. Help desk needs to be briefed and prepared. Most common issues are access related.
- Content Support: It is common for learners to question or challenge course content. A mechanism to provide support and/or evaluate the feedback for content updates is recommended.

CANADIAN POLICE KNOWLEDGE NETWORK

Most Common Issues

- Integration with existing HR systems (like PeopleSoft)
- Compatibility of products from multiple vendors (SCORM)
- Not enough bandwidth to support the media demand (rare)
- User adoption issues (Stanhope!)
- Security
- Sensitive learner data (pass/fail versus score, etc)
- Accessibility Issues

CANADIAN POLICE KNOWLEDGE NETWORK

Sample Courseware and LMS Demonstration

CANADIAN POLICE KNOWLEDGE NETWORK

Question and Answer

CANADIAN
POLICE
KNOWLEDGE
NETWORK