

Nurses & Informatics: Transforming Healthcare Conference

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The Hospital for Sick Children



Computer Based Training: *An Innovative Approach to Learning a New Clinical Information System*



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SickKids

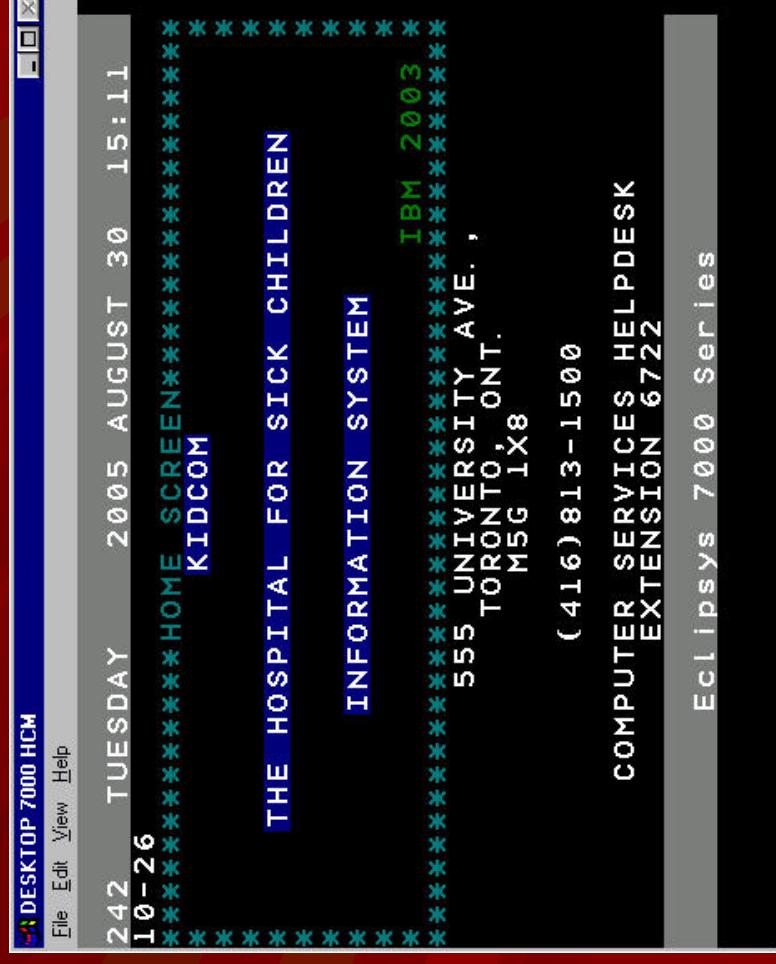
Agenda



- Provide a brief overview of the SickKids' Clinical Information System (CIS) replacement project
- Discuss the factors to consider when planning training
- Define Computer Based Training (CBT)
- Identify the advantages and disadvantages of CBT
- Discuss the CBT developed for our setting
- Future plans

Background

- Kidcom – The hospital's main Clinical Information System
- Purchased in 1990
- DOS based client



```
DESKTOP 7000 HCM
File Edit View Help
242 TUESDAY 2005 AUGUST 30 15:11
10-26 *****HOME SCREEN*****
*****KIDCOM*****
*****
***** THE HOSPITAL FOR SICK CHILDREN *****
***** INFORMATION SYSTEM *****
***** IBM 2003 *****
***** 555 UNIVERSITY AVE., *****
***** TORONTO, ONT., *****
***** M5G 1X8 *****
***** (416) 813-1500 *****
***** COMPUTER SERVICES HELPDESK *****
***** EXTENSION 6722 *****
***** Eclipsys 7000 Series *****
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Kidcom Implementation

- ADT in 1993
- In-patient units from 1993-1996
 - Physician order-entry, Medication, IV & Blood Product Administration, Nursing Charting, and Results retrieval
- NICU, PICU, ER in 1996
 - Laboratory & Diet order-entry
- Kidcom available on approximately 500 workstations throughout the hospital

KidCare

- Replacing Kidcom
- However, ADT will remain on Kidcom for now
- Windows Based Client

The screenshot displays the Sunrise Clinical Manager interface. The top window shows the patient record for Affleck, Ben, with details such as age (11y), gender (Male), and assigned location (MRI). Below this, a 'Patient List' window shows a table of 22 visits. The 'Current List' dropdown is set to '*Testing'. The table columns include Patient Name, Assigned Location, Provider, Visit Stat., Admit Date, Admit Time, Age, Birthdate, and Gender.

Patient Name	Assigned Location	Provider	Visit Stat.	Admit Date	Admit Time	Age	Birthdate	Gender
Affleck, Ben	MRI	Tshilas, John	CLS	2005-Feb-17	09:00	11y	1993-Jun-10	Male
Campanon, Guillermo	Emergency	Mehta, Sanjay	DSC	2005-Mar-10	11:00	30y	1974-Jul-31	Male
Downtime, Clinic Reg	Phillips, J.	No HSC Resp.P...	CLS	2005-Mar-09	13:22	8y4m	1996-Oct-25	Male
Hentz, Alana	4D-4812-C	Rossi, Miriam	ADM	2005-Aug-10	13:40	16y	1988-Nov-13	Female
Ingwersen, Annabelle	4D Playbed-A	Mccarthy, P.	ADM	2005-Aug-10	14:07	13y	1992-Mar-14	Female
International, Patient	Mahant, S.	No HSC Resp.P...	CLS	2005-Mar-22	08:41	4y7m	2000-Aug-08	Female
Jones, Porfia	Transport Team	Braudo, Michael	CLS	2005-Aug-11	12:49	7m3w	2004-Dec-14	Female
Kitty, Hello	Drake, J.R.	No HSC Resp.P...	CLS	2005-Mar-21	15:45	7m2w	2004-Jul-31	Female
Kowalenko, Lavia	MRI	No HSC Resp.P...	CLS	2005-Mar-21	15:52	5y1m	2000-Feb-02	Female
Kowalenko, Lina	5A Playbed-A	Letwin, Kenneth	ADM	2004-May-19	13:26	5y6m	2000-Feb-03	Female

KidCare Implementation



- Hospital-wide implementation
- Approximately 1200 workstations
- There are currently 4000 active Kidcom users that will require training

KidCare Implementation

- Three major phases
- Phase One: Results Retrieval Only
- Phase Two: Order-Entry & Basic Documentation for all areas currently using Kidcom
- Phase Three: KidCare will be used for all clinical functions. Will integrate with other clinical applications.

Hospital Statistics 2003-2004

Inpatient Activity: 13, 708 Discharges

Outpatient Activity: 288, 473 Visits

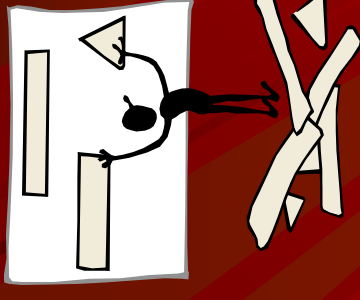
Emergency Activity: 43, 202 Visits

Operating Room Activity: 23, 270 Hours

Planning Training



Resistance to Change



- Hospital Staff will be skeptical of Information Technology and may resist learning or using a new system (Bozak, 2003)
- Educators must recognize this resistance and plan training strategies to work through these barriers
- Kurt Lewin's Force Field Analysis Model is a good tool to guide this change

Learning Styles

- Educators must also consider different learning styles, when designing and delivering courses
- Kolb identifies four learning styles:
 - The Accomodator (Activist)
 - The Assimilator (Theorist)
 - The Converger (Pragmatist)
 - The Diverger (Reflector)



Kolb, 1984

Adult Learning Principles

Adult learners:

- are responsible & self-directed
- are motivated to improve personal performance
- require immediate feedback
- learn best in a non-threatening environment
- begin learning programmes with some anxiety and stress that may interfere with learning

Ammon-Gaberson, 1987 and Nelson, 1999

Methods of Course Delivery

- Instructor led classroom setting
 - Hands-on learning
 - Size 8-12 students per class
 - 1 hr session
- Individualized training for Staff Physicians and Fellows
- Computer Based Training with proficiency testing

Computer Based Training



SickKids

Definition

- “ An interactive learning experience between a learner and a computer in which the computer provides the majority of the stimulus, the learner must respond, and the computer analyzes the response and provides feedback to the learner” (Gery, 1987)



Advantages of CBT



- KidCare vendor (Eclipsys) supplied product and customized courseware
- Provides time flexibility:
 - Available 24/7 via intranet or by CD
 - Allows for a large number of staff to be trained within a short period of time
 - By decreasing in-class training time, we are decreasing time away from clinical activities

Advantages (cont'd)

- Relatively inexpensive investment
- Supports adult learning principles & caters to a wide spectrum of learners with various learning styles
- Easy to maintain

Disadvantages of CBT

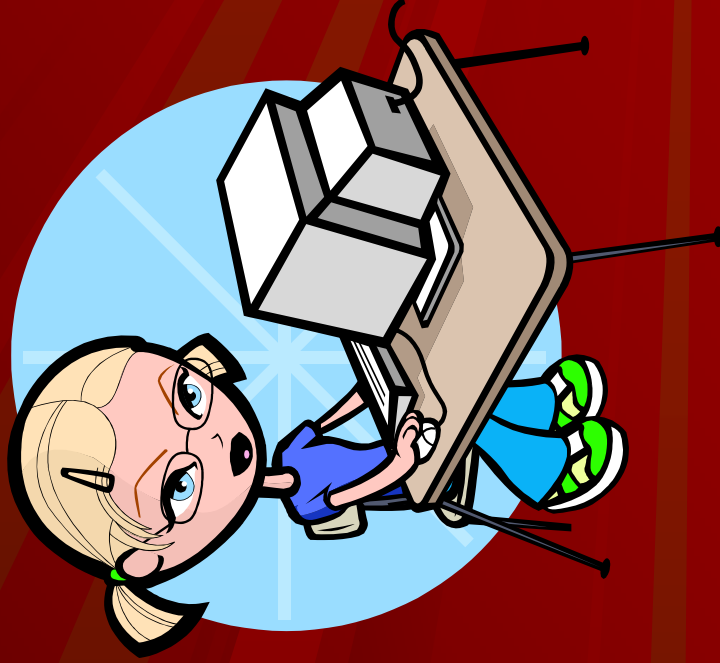


- Set-up
 - Hardware Installation – Dependent on Eclipsys because they needed to send someone on-site for 1 day to assist with initial set-up
 - **Additional 4-5 days at a later date for Sick Kids staff to complete upgrade installation.
- Software – To learn how to use the product, had to attend a 5 day off site training course. Costly training programme.

Disadvantages (cont'd)

- May not cater to specific learning styles. Users may feel a lack of human affirmation and feedback even though the CBT provides responses to their actions.
- Became outdated before we went live. Eclipsys was eventually able to provide custom courseware for the newest version.
- Learning Management System (LMS) was an additional cost. It did not come with the Easy Author product.
- Potential difficulties with access. There can be a potential for difficulties associated with staff access to designated computer workstations and the amount of time required using them.

Easy Author



Easy Author

- Easy Author (EA) is a product developed by Eclipsys
- It is a Windows authoring tool whose courses are distributed via a Web server
- Students access the courses through Internet Explorer within HSC or can take a CD home

Easy Author

- Courses are developed on an ‘Authoring’ workstation, then pushed to the Web Server for access via a web browser
- Each author workstation has EA installed on the local drive

Easy Author Programs

- 3 programs:
 - Forms – to create/modify the courses
 - Utilities – management of the courses
 - Playback – viewing of the courses

Preparation

- Step 1: you should have a plan/scope/objectives that need to be met
“What should the learner be able to do and what must they know before they can do it”
- Step 2: create an outline that divides it into exercises and topics

Forms

- This is where you assemble text, graphics and multimedia elements in specific interaction formats.
- Simple functions to:
 - Copy/move/delete topics and/or pages
 - Search and Replace text strings for courses
- The interaction type determines which templates are available to be used.
- Currently EA provides 14 different interaction types using 57 different templates.

Interaction Types

- Feedback Hotspot
 - With or without 'Correct' message
 - Right Click
 - Double Click
- Information Hotspot
 - Random
 - Sequential
 - Right/left Click
- Instruction
- Multiple Choice

Interaction Types (cont'd)

- Play Video
- True/False
 - True/False (default)
 - Yes/No
 - Correct/Incorrect
- Type-In
 - Opaque
 - Transparent

Templates

- Determines how the page will act, what fields will be active, and what the student must do to use the page
- 6 text areas and up to 3 graphic areas arranged in varying sizes and formats
- 57 templates

Page Elements

Graphics:

- Location, number & size determines by the template
- Supports numerous graphic formats:
 - BMP / EMF / GIF / JPEG / PICT / PNG
PSD / PS3 / TIFF / TGA / WMF
- Software comes with many built-in graphics

Page Elements (cont'd)

- Animations
 - Can display up to 6 animated graphics on most templates and 1 for most responses
- Video
 - Can include AVI videos or Flash movies
- Audio
 - Supported File formats: IFF / PCM / SWA / VOX / WAVE

Playback

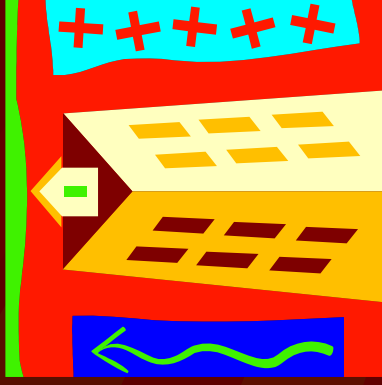
- Set location, appearance, and layering of hotspots
- Create and see the location, appearance and layer of drawn objects (rectangles, ovals and/or lines)
- Positions and layer of page animations and text and graphics
- Set the starting point, ending point and speed of animations

Utility

- When authoring complete, EA Utility will:
 - Copy courses or exercises from your workstation to the web server or vice versa
 - Rename/delete courses/exercises
 - Case Match filenames
 - Make LMS Files
 - CD Maker

EASY AUTHOR DEMO

SickKids



Future Implications

- Implementation for future phases of KidCare
- Can be used with other applications within the hospital
- As we implement KidCare, we will continue to evaluate the effectiveness of CBT

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