

Course Syllabus

Course Number and Title: EDIT797 Performance Based Design
3 Credit Hours – Fall 2001

Instructor: Gary J. Dickelman
Telephone : (703) 622 (9747) **e-mail:**gdickelman@pcd-innovations.com
Office: TBD **Office Hours:** TBD

Textbooks:

Required:

Gery, Gloria (1991), *Electronic performance support systems*. Tolland,MA: Gery Associates; ISBN: 0964622300 (available in the bookstore for purchase).

Special issues of the Performance Improvement Journal (ISPI) - to be distributed in class or available on-line at no cost to the student.

Not required, but recommended:

Additional readings will be selected from the following works:

Cooper, Alan (1999) *The inmates are running the asylum: why high tech products drive us crazy and how to restore the sanity*. Indianapolis,IN:SAMS (ISBN: 0672316498)

Norman, Donald A. (1988) *The design of everyday things*. New York,NY:Doubleday ISBN: 0385267746 (Paperback re-issue March 1990)

_____ (1993), Things That Make Us Smart: Defending Human Attributes in the Age of the Machine, Reading, MA: Addison-Wesley Publishing Company

_____ (1998), The Invisible Computer : Why Good Products Can Fail, the Personal Computer Is So Complex and Information Applicances Are the Solution, Cambridge, MA: MIT Press

Course Description: EDIT797 is a practical introduction to the business imperative and development lifecycle for creating, implementing, and evaluating performance-centered systems. The course distinguishes the characteristics and development methods of performance-centered systems from those of machine-, data-, human-, user-centered system. The course provides complete expositions and protocol for analysis, design, development, implementation, and evaluation of performance-centered systems within a dynamic, innovative and exciting real-world framework.

EDIT797 - Performance Based Design – Fall 2001

Objectives: Upon completion of this course, participants will be able to:

1. Articulate the business imperative for performance-centered design.
2. Define performance-centered systems and distinguish them from machine-, data-, human-, and user-centered system;
3. Articulate attributes and behaviors of performance-centered systems;
4. Analyze business performance gaps and determine how they can be filled with performance centered system techniques;
5. Design, develop, and implement performance-centered systems using PCD protocol;
6. Conduct performance-centered system evaluations;
7. Use a commercial software package to create performance-centered system components.

Learning Modes: Lecture, demonstrations, interactive discussions, on-line collaboration, asynchronous reviews, and cooperative learning.

Course Format: This course will be conducted as a graduate-level seminar and laboratory course. Participation in all learning events is expected; practical performance-centered system development work is mandatory to successfully achieve the course objectives. Participants will construct a knowledge base of readings, course notes, PCD protocol, and sample modules.

Evaluation: Course grades will be based on the following:

In-class evaluation:	50 points
PCD Projects:	350 points
Research paper:	<u>100 points</u>
TOTAL	500 points

Grading Criteria:

A:	450 – 500
B:	400 – 449
C:	300 - 399

Evaluation Criteria:

Evaluation is criterion-referenced. Must demonstrate mastery of PCD process, which means having the ability to develop a compelling business case and produce industrial-strength, real-world systems. Must demonstrate the ability to design and create systems that support business or organizational performance through human performance by exhibiting the following characteristics at a minimum:

- supports performers through best business practices;
- establishes or aids in establishing goals;
- represents and facilitates the proper flow of work;
- minimizes cognitive burden (e.g., translation);

EDIT797 - Performance Based Design – Fall 2001

- provides access to supporting resources;
- manages knowledge; and
- stretches the PCD paradigm.

In-class evaluation refers to specific activities, discussions, progress reports, or other items designated as evaluation items.

Guidelines for Research Paper: The research paper will be a scholarly work, consisting of 1500 – 4000 words, referencing the works of at least four (4) leaders from fields and practices that comprise PCD. The paper must address a relevant PCD issue in any or all of the categories *business performance*, *cognitive science*, and *technology infrastructure*. Note: Although not formally part of the course evaluation criteria, those individuals whose papers make a sound contribution to the PCD literature will be given the opportunity to have their papers published.

Guidelines for PCD Project: By engaging PCD principles in the creation of critical performance-centered system components in a course projects, the student must demonstrate abilities in key phases of the performance-centered systems development lifecycle (analysis, design, development, implementation, and evaluation).

Format for Project Proposal

A. Project Name

B. Project Objective

What do you intend to show, prove, or develop? Which elements of the PCD process are the focus of the project? What is the purpose, who is the customer, and what is critical to success?

C. Project Deliverable

Is the result going to be a working system? - a prototype? - a design specification? - an evaluation? Be specific.

D. Project Team

Are you going to work alone or in a group? If the latter, who are the members and what roles will each person play?

E. Business Problem and Business Needs

State the business problem or organizational problem around which your project focuses. This should be a real problem that has measurable performance gaps - in business/organization and human terms. State specifically how you expect the PCD activities to contribute to filling the performance gaps.

F. Project Plan Outline

Delineate how your project will proceed from its onset to its conclusion. How will you measure progress (i.e., what are the interim deliverables and what are the review and approval processes)? When will you engage each element or subelement of the PCD process? How? If yours is a team project, what are the roles and responsibilities of each team member with respect to the project tasks and outcomes?

G. Presentation Proposal


EDIT797 - Performance Based Design – Fall 2001

How will you present your results? What (if any) equipment will be needed? Who will do what (if a team)? What would be the suggested evaluation criteria to fairly assess your expertise?



Course Outline:

Date	Topics	Readings/Assignments
8/30	Introduction to Performance Centered Design <ul style="list-style-type: none"> • The Business Case • Underpinnings • Definition • Examples • What it's not 	<ul style="list-style-type: none"> • Gery, Chapters 1 – 4 • Gery, <i>Attributes and Behaviors of Performance-Centered Systems</i>, http://cpt.fsu.edu/PIQContents/Gery.pdf • Dickelman, <i>Gershom Rides Again</i>, http://www.pcd-innovations.com/rides/rowhid2.html • Dickelman, <i>Performance Support in Internet Time</i>, http://www.pcd-innovations.com/PSinInternetTime/index.htm
9/6	Performance-Centered Systems Engineering <ul style="list-style-type: none"> • Overview • Underpinnings • Process • Disciplines and Competencies • Exercises 	<ul style="list-style-type: none"> • Gery, Cases chapter (pp. 53-178)...look through half of these • Bannan-Rittland et. al., <i>Literary Explorer</i> (an example by GMU students), http://www.pcd-innovations.com/pijuly2000/LiteraryExplorerGMU.pdf • Banerji, <i>Performance Support in Perspective</i>, http://www.pcd-innovations.com/piaug99/PSinPerspective.pdf
9/13	The Compelling Business Need <ul style="list-style-type: none"> • Examples • VMPA and the Action Planning Process • Analytic Tools: AHP • Appropriateness • Risk assessment & management • When to take the next step • Exercises 	<ul style="list-style-type: none"> • Raybould (2000), <i>Performance Support Engineering: Building Performance-Centered Web-Based Systems, Information Systems and KnowledgeManagement Systems in the 21 st Century</i>, http://www.pcd-innovations.com/pijuly2000/Raybould2000.pdf • Dickelman, <i>Gershom's Law</i>, http://www.pcd-innovations.com/law/ • Huber, et. al., <i>Teaming Up for Performance Support</i> http://www.pcd-innovations.com/piaug99/TeamingUp.pdf
9/20	Process Modeling and Simulation <ul style="list-style-type: none"> • Examples and Exercises • The Role of Dynamics in PCD • Processes and Procedures • Enabling Software • Analytic Tools • Exercises 	<ul style="list-style-type: none"> • PCD project proposals due • Gery, Cases chapter (pp 53-178) – continued (read the remaining examples)
9/27	No class	On-line review of PCD tools and systems will be assigned.

EDIT797 - Performance Based Design – Fall 2001

10/4	<p>Diversity Modeling</p> <ul style="list-style-type: none"> • Interests, values, skills, learning style, personal style, risk tolerance • Relationships between diversity, PCD attributes, and business parameters • The role of <i>personas</i> in PCD • Examples • Exercises 	<p>Research paper topics due</p> <p>Cooper, Alan (1999) <i>The inmates are running the asylum: why high tech products drive us crazy and how to restore the sanity.</i> Indianapolis,IN:SAMS (ISBN: 0672316498) Chapter 9 - See me for a paper copy.</p> <p>Norman, Donald A. (1998) <i>The invisible computer: Why products can fail, the personal computer is so complex, and information appliances are the solution,</i> Cambridge, MA: MIT Press</p> <p>Chapter 9 - See me for a paper copy.</p> <p>Greenberg, J.D., and Dickelman, G.J., Distributed cognition and performance support. Performance Improvement, July 2000. Volume 39 / Number 6</p>
 1	<p>Hypermedia Engineering & Knowledge Management</p> <ul style="list-style-type: none"> • The role of hypertext in PCD • Infobases and knowledge bases versus databases • Content objects, units, and nodes • Reachability • Currency • Converting between media • Tools and technologies • Exercises 	<p>Research paper abstract and outline due.</p> <p><i>Knowledge Management for the New World of Business</i> by Yogesh Malhotra: http://www.brint.com/km/whatis.htm Suggested Reading: <i>Does KM=IT?</i> http://www.cio.com/archive/enterprise/091599_ic.html</p> <p><i>The Case for Creative Abrasion</i> http://www.pcd-innovations.com/creative_abrasion.htm</p> <p>The history of hypertext as Ted Nelson created it: Xanalogical Structure, Needed Now More than Ever: Parallel Documents, Deep Links to Content, Deep Versioning and Deep Re-Use at http://www.sfc.keio.ac.jp/~ted/XUsurvey/xuDation.html About Ted Nelson's <i>Literary Machines</i>: http://www.feedmag.com/html/document/98_02nelson/intro.html Ted Nelson's One-Liners: http://www.sfc.keio.ac.jp/~ted/TN/WRITING_S/ TCOMPARADIGM/tedCompOneLiners.html Suggested Reading: <i>Reading, Scholarship, and Hypertext Editions</i> http://www.press.umich.edu/jep/03-01/reading.html</p>

EDIT797 - Performance Based Design – Fall 2001

10/18	<p>Representations</p> <ul style="list-style-type: none"> • The role of representations in PCD • Examples • Underpinnings • The Power of Constraints • The Power of Redirection • Exercises 	<p>Norman, Donald A. (1993), Things That Make Us Smart: Defending Human Attributes in the Age of the Machine, Reading, MA: Addison-Wesley Publishing Company: Chapters 3 & 4 - will be distributed in class.</p>
 25	<p>Interaction Design</p> <ul style="list-style-type: none"> • Business performance through human performance revisited • Performance-centered usability • Personas versus elastic users • Things that make us smart • Things that make us powerful • Things that bring us pleasure • When the inmates run the asylum • Process • Examples • Exercises 	<p>PCD project progress report due:</p> <ul style="list-style-type: none"> • Requirements • Specifications • Low-fidelity prototype • Evaluation criteria • % complete <p>Complete the quiz and exercises of the 10/18 lecture (will be available on line).</p> <p>Review the distributed chapters from: Cooper, Alan (1999) <i>The inmates are running the asylum: why high tech products drive us crazy and how to restore the sanity.</i> Indianapolis,IN:SAMS (ISBN: 0672316498)</p>
 1	<p>Interface Design</p> <ul style="list-style-type: none"> • Business focus • Performance-centered usability goals • Icons and buttons and mice (Oh, my!) • Interactions revisited • Objects and actions • Low-, medium-, and high-fidelity representations • Testing usability of the interface • Examples • Exercises 	<p>Chapters 11 and 12 of Cooper, Alan (1999) <i>The inmates are running the asylum: why high tech products drive us crazy and how to restore the sanity.</i> Indianapolis,IN:SAMS (ISBN: 0672316498)</p> <p>Excerpts of the above will be distributed in class.</p> <p>pp. 168 - 178 of Gery, Gloria (1991), <i>Electronic performance support systems.</i> Tolland,MA: Gery Associates; ISBN: 0964622300.</p> <p>Question: How prophetic was the <i>Directions for Education</i> table on page 171? Also, skim chapter 8: <i>Development and Implementation.</i> How does this chapter compare with our PCS development lifecycle?</p>

EDIT797 - Performance Based Design – Fall 2001

11/8	<p>Performance-Centered Usability Evaluations</p> <ul style="list-style-type: none"> • Purpose • Techniques • Test sites • Evaluators • Scenarios, briefings, and debriefings • Scheduling • Observing • Drawing conclusions • Iteration • Examples • Exercises 	<p>Research papers due.</p> <p>http://www.pcd-innovations.com/fear/fearng.html <i>Fear and Loathing on the Keyboard: Why we should hate software that's smarter than we are, and what to do about it.</i> This article addresses Usability Engineering for performance centered design.</p> <p>http://www.pcd-innovations.com/usab01.html <i>Usability PS: Performance support for conducting usability evaluations</i> is a set of performance support tools and guidelines (i.e., a self-help guide) for conducting usability evaluations. The reading is available via this link and will also be distributed in class on *gasp!* paper!</p> <p>Review Jakob Nielsen's Alertbox at http://www.useit.com/alertbox/</p>
11/15	<p>Technologies and related infrastructure</p> <ul style="list-style-type: none"> • Spheres of influence and domains of control • The myths of intrinsic, extrinsic, and external support • Bandages • Source code • Agents, events, and messages • Distribution and deployment • Dynamics revisited • Currency, synchronicity, and business dynamics • Examples • Exercises 	<p>PCD project progress report due:</p> <ul style="list-style-type: none"> • Hi-fidelity prototype • % complete • Presentation plan <p>Readings TBD</p>
11/22	No Class	
11/29	<p>Barriers, tradeoffs, and compromise</p> <ul style="list-style-type: none"> • Philosophy, politics, and engineering • The pain model • Measuring success • Marketing and sales • Tips and tricks • Examples • Exercises 	TBD
12/6	Project presentations	Projects due
12/13	Project presentations	

EDIT797 - Performance Based Design – Fall 2001

References:

Baecker, Ronald M. & Grudin, Jonathan & Buxton, William A. S. & Greenberg, Saul, (1995) Readings in Human-Computer Interaction: Toward the Year 2000, Second Edition, San Francisco, CA: Morgan Kaufmann Publishers, Inc.

Casti, John L. (1989), Paradigms Lost, New York: Avon Books

Constantine, Larry & Lockwood, Lucy (1999) Software for use: a practical guide to the models and methods of usage-centered design, New York, NY: ACM Press / Addison Wesley

Cooper, Alan (1999), The Inmates Are Running the Asylum : Why High Tech Products Drive Us Crazy and How To Restore The Sanity, Indianapolis, IN: SAMS

_____ (1995), About Face: The Essentials of User Interface Design, Foster City, CA: Programmers Press / IDG Books Worldwide

Davis, Stan & Botkin, Jim (1994), The Monster Under the Bed: How Business Is Mastering the Opportunity of Knowledge for Profit, New York, NY: Simon & Schuster

Giedion, Siegfried (1948), Mechanization Takes Command, New York, NY: W.W. Norton & Company, Inc.

Horn, Robert E. (1989), Mapping Hypertext, Lexington, MA: Lexington Institute

Keyes, Jessica (1995), Technology Trendlines: Technology Success Stories From Today's Visionaries, New York, NY: Van Nostrand Reinhold

Lackoff, George & Johnson, Mark (1980), Metaphors We Live By, Chicago, IL: The University of Chicago Press

Landauer, Thomas K. (1996), The Trouble With Computers, Cambridge, MA: The MIT Press

Laurel, Brenda (1993, 1991), Computers as Theater, Reading, MA: Addison-Wesley Publishing Company

Mayhew, Deborah J. (1992), Principles and Guidelines in Software User Interface Design, Englewood Cliffs, NJ: Prentice-Hall, Inc.

Nielsen, Jacob (1993), Usability Engineering, Boston, MA: Academic Press, Inc.

_____ (1995), Multimedia and Hypertext: The Internet and Beyond, Boston, MA: Academic Press, Inc.

EDIT797 - Performance Based Design – Fall 2001

_____ & Mack, Robert L. (1994), Usability Inspection Methods, New York, NY: John Wiley & Sons, Inc.

_____, (1999), Designing Web Usability: The Practice of Simplicity, Indianapolis, IN: New Riders Publishing

Norman, Donald A. (1988), The Design of Everyday Things, New York, NY: Doubleday

_____ (1992), Turn Signals Are the Facial Expressions of Automobiles, Reading, MA: Addison-Wesley Publishing Company

_____ (1993), Things That Make Us Smart: Defending Human Attributes in the Age of the Machine, Reading, MA: Addison-Wesley Publishing Company

_____ (1998), The Invisible Computer : Why Good Products Can Fail, the Personal Computer Is So Complex and Information Appliances Are the Solution, Cambridge, MA: MIT Press

Opper, Susan & Fersko-Weiss, Henry (1992), Technology for Teams: Enhancing Productivity in Networked Organizations, New York, NY: Van Nostrand Reinhold

Piskurich, George M. (1993), The ASTD Handbook of Instructional Technology, New York, NY: McGraw-Hill

Pfeffer, Jeffrey & Sutton, Robert I. (2000), The Knowing-Doing Gap: How Smart Companies Turn Knowledge Into Action, Boston, MA: The Harvard Business School Press

Rudisill, Marianne & Lewis, Clayton & Polson, Peter B. & McKay, Timothy D. (1996), Human-Computer Interface Design, San Francisco, CA: Morgan Kaufmann Publishers, Inc.

Saaty, Thomas L. (1980), The Analytic Hierarchy Process, New York, NY: McGraw-Hill Book Company

_____ (1991), Analytic Planning: The Logic of Priorities (Analytic Hierarchy Process, Vols 3 and 4), New York, NY: McGraw-Hill Book Company

_____ (1982), Decision Making for Leaders: The Analytic Hierarchy Process for Decisions in a Complex World, Belmont, CA: Wadsworth, Inc.

Schneiderman, Ben & Kearsley, Greg (1989), Hypertext Hands-On!, Reading, MA: Addison-Wesley Publishing Company

EDIT797 - Performance Based Design – Fall 2001

Tenner, Edward (1996), Why Things Bite Back: Technology and the Revenge of Unintended Consequences, New York, NY: Alfred A. Knopf, Inc.

Tufte, Edward R. (1983), The Visual Display of Quantitative Information, Cheshire, CT: Graphics Press

_____ (1990), Envisioning Information, Cheshire, CT: Graphics Press

_____ (1997), Visual Explanations: Images and Quantities, Evidence, and Narrative, Cheshire, CT: Graphics Press

Veryard, Richard (1992), Information Modeling: Practical Guidance, New York, NY: Prentice Hall