GEORGE MASON UNIVERSITY
COLLEGE OF EDUCATION AND HUMAN DEVELOPMENT
Instructional Technology Program
EDIT 801 (3 credits)
Nature and Process of Design
Fall 2010
Day/Time: Mondays 4:30-7:10pm or alternative
Location: Commerce II Room 100

PROFESSOR(S):
Name: Dr. Brenda Bannan
Office phone: 703-993-2067
Office location: Commerce Room 109
Office hours: By appointment
Email address: bbannan@gmu.edu

PREREQUISITE: EDIT 752, EDCI 716, or EDCI 705

COURSE DESCRIPTION:

Examines multi-disciplinary and cross-disciplinary perspectives on the nature and process of design to promote an expanded view of the process of designing and developing learning technologies including perspectives from multiple fields involved in technology design.

NATURE OF COURSE DELIVERY:

This course focuses on presenting an overview of multi- and cross- disciplinary views of design processes to inform and engaging students involved in the design and research of learning technologies in the observation and analysis of the process of design and design thinking. The course is designed to provide an opportunity for students to examine the philosophical as well as pragmatic aspects of both systematic and non-systematic approaches to design to promote inquiry, synthesis and action for the purposes of design and research. Multiple domains incorporate design processes and this course will allow students to build a deeper understand of design as a "generative human agency."

This course will be conducted in a blended, face-to-face and online manner involving short-lectures, discussions and group work. Approximately half the course sessions will be conducted face-to-face introducing related concepts, models and constructs about design. Approximately half of the remaining course sessions will be conducted online using a course Wiki to permit students to reflect, generate and collaboratively draft a potentially publishable paper related to examining an aspect of design through a multi- and cross-disciplinary view. Participants will share perspectives through in-class and on-line discussion of the readings, carry out qualitative observations of a design team, conduct a literature review on design within a particular discipline and contrast it with other perspectives on design presented by their peers in a cumulative final paper.

LEARNER OUTCOMES:

This course is designed to enable students to:

- Understand the multidisciplinary nature of design process
- Examine the interaction between design team members and how observations of a design team to intersect with the theoretical and applied literature with actual design process
- Examine the construct of "design thinking" and its instantiations
- Demonstrate a written synthesis of an applied design experience and applicable literature on the practice of design

PROFESSIONAL STANDARDS:

This course adheres to the following Instructional Technology Program Goals and Standards for Programs in Educational Communications and Instructional Technologies established by the Association of Educational Communication and Technologies (AECT) under the National Council for the Accreditation of Teacher Education (NCATE).

Standard 1 – Design

1.1.2.a Demonstrate in-depth synthesis and evaluation of the theoretical constructs and research methodologies related to instructional design as applied in multiple contexts.
1.1.3.b Utilize the research, theoretical, and practitioner foundations of the field in the development of instructional materials.
1.1.5.c Articulate the relationship within the discipline among theory, research, and practice as well as the interrelationships among people, processes, and devices.

REQUIRED TEXTS:

Nelson, H.G. (2003). The Design Way: Intentional Change in an Unpredictable World, Foundations and Fundamentals of Design Competence. Englewood Cliffs, New Jersey: Educational Technology Publications. ISBN 0-87778-305-5

Lawson, B. (2006). How Designers Think. Burlington, MA: Architectural Press

Pachler, N., Bachmair, B., and Cook, J. (2010) Mobile Learning: Structures, Agency, Practices, Springer.

OPTIONAL TEXTS:
Thakara, J. (2005). In the Bubble: Designing in a Complex World. Boston, MA: MIT Press ISBN: 0262201577
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REQUIRED READINGS:

Current supplemental readings may be selected by the instructor for review and commentary by students.

COURSE REQUIREMENTS, PERFORMANCE-BASED ASSESSMENT, AND EVALUATION CRITERIA:

A. Requirements: There are three main requirements in this course: (1) class participation (40% of grade); (2) literature review (30% of grade); and (3) collaborative paper (30% of grade). These requirements are examples of performance-based assessments (PBA) and are described in detail below.

(1) Class Participation (40%): Being an effective class participant is very important in this course because much of what you will learn will be from the other students in class. Effective class participation involves not only preparation and speaking skills, but also listening skills, contributing to the course Wiki/Online Reference Tool and commenting on peers' contributions both in-class and online. Specifically:

- In-class participation: Students must make significant contributions towards building a shared interpretation of the texts and theories being discussed. This includes participation in class discussion and in textual analysis of the readings. (10%)
- Social software/Reference contribution: Students must make contributions to a social software bookmarking site (e.g. Delicious), online collaborative reference tool (e.g. zotero) or equivalent in identifying , reviewing and annotating relevant sites or sources related to our directed study. (10%)
- Knowledge base: Students must also make significant contributions to an online knowledge-building environment (e.g., a Wiki) which will be used as a medium for supporting the reporting/evolution of theoretical ideas, observational analysis and paper drafts . (10%)
- Peer critique: Students must also reflect upon, comment and edit analytic contributions/paper sections that others have written. (10%)

(2) Observation of actual design team environment: (30%):

- In teams, students will (a) identify or be assigned an existing design team to observe in an educational, corporate, non-profit, or military setting. Each team will then collect observational qualitative data related to a previously identified construct in design process, design context and/or design thinking. These observations will be documented on the course wiki and analyzed using qualitative case study methods to inform the writing of the analytic collaborative paper described below. Each student will be expected to post insightful individual reflections and analysis which then will be incorporated into a cohesive qualitative analysis.

(3) Analytical Collaborative Paper (30%):

- Each student will contribute to a collaborative, potentially publishable 15 page qualitative research paper on their observations of the nature of design intersected with the applied and research literature on design process. The student team should identify an important issue or aspect of design or design thinking for observation in an actual design team and exploration in the literature to synthesize important constructs related to design. The paper will take the form of a qualitative case study informed by the literature. Each student will be expected to continually contribute references to write an individual section of the paper determined by the team.

B. Performance-based assessments

The course includes 3 performance-based assessments (PBA) as described in the requirements section above. These include: (1) course participation through individualized and collaborative contributions both in-class and online; (2) qualitative observation of a design team; and (3) a collaborative paper intersecting qualitative analysis of the design team case study with literature on design process and design thinking. Each PBA will be evaluated through a rubric provided in the next section.

C. Criteria for evaluation

Participation rubric for both in-class and online participation and contributions (40%):

- Outstanding contributor: contributions reflect exceptional preparation. Ideas offered are always substantive, providing one or more major insights as well as direction for the class. Frequent references are made to the readings and/or to knowledge from other sources, often showing the ability to generalize or extend the material under discussion. If this person were not a member of the class, the quality of discussion would be diminished markedly.

- Good contributor: contributions reflect thorough preparation. Ideas offered are usually substantive, providing good insights and sometimes direction for the class. Occasional references are made to the readings and/or to knowledge from other sources, sometimes showing the ability to generalize or extend the material under discussion. If this person were not a member of the class, the quality of discussion would be diminished.

- Adequate contributor: contributions reflect satisfactory preparation. Ideas offered are sometimes substantive, providing some useful insights but seldom offer new direction for the discussion. Some references are made to the readings and/or to knowledge from other sources but seldom generalize or extend the material under discussion. If this person were not a member of the class, the quality of discussion would be diminished somewhat.

- Unsatisfactory contributor: Contributions reflect inadequate preparation and/or there is little contributions in class or online. Ideas offered are seldom substantive, providing few insights and no direction for the class. References to readings are rare or non-existent. If this person were not a member of the class, the quality of discussion and knowledge

building would be unchanged.

- Note: Students who do not participate or contribute will receive zero points in the applicable area.

- Table 1 below provides the point assignment and distribution across the 4 categories of this rubric.

Table 1 Participation Rubric (40%)

	Category 1	Category 2	Category 3	Category 4
CRITERIA	Unsatisfactory Contributor	Adequate Contributor	Good Contributor	Outstanding Contributor
In-class participation	6	7	8	10
Social software/ Online References	6	7	8	10
Wiki Knowledge base	6	7	8	10
Research Paper				
Score	24	28	32	40

(Total Possible Points: 40)

Table 2 Research Paper Rubric (30%):

Criteria	No Evidence	Beginning (Limited evidence)	Developing (Clear evidence)	Accomplished (Clear, convincing, substantial evidence)
Topic addressed is important to the study of design and design thinking				
Literature examined is pertinent to topic and grounded in the research on design process and technology in assigned section				
Individual conclusions vis a vis the impact of the analysis				

of qualitative observations on the design process is cogent and cohesive				
Paper adheres to APA style				
Paper aligns with length requirement				
Bibliography is comprehensive				
SCORE				

(Total Possible Points: 30)

Observation of Design Team Rubric (30%):

Criteria	No Evidence	Beginning (Limited evidence)	Developing (Clear evidence)	Accomplished (Clear, convincing, substantial evidence)
Qualitative themes are well developed, comprehensive, interdisciplinary, and grounded in design process literature				
Identified themes are used to analyze the identified area interaction or process of design team				
Observational data collection procedures are clearly described and logically align with core elements of analysis				
Evidence of organized, pre-planned research design through timely individual contributions to knowledge base, analysis and paper				
Bibliography is comprehensive and related to individual paper				
SCORE				

(Total Possible Points: 30)

D. Grading scale: A = 94-100; A - = 90-93; B+ = 86-89; B = 83-85; B- = 80-82; C = 70-79; F = <70

PROPOSED CLASS SCHEDULE

*Due to the fluid, real-world and dynamic nature of the design process/context, the instructor reserves the right to change the syllabus/schedule during the course if needed based on project needs/requirements. Every effort will be made to keep students abreast of changes as soon as possible but professionalism and demonstration of your aptitude as a designer/design researcher to varying levels of ambiguity and required flexibility in complex, real world projects is expected in this course.

Date	Topic/Learning Experiences	Readings and Assignments for next class
Week1 **F-to-F**	Intro to Interdisciplinary and Mobile Learning Design	o Nelson, H.G. & Stolterman, E. (2003). The design way: intentional change in an unpredictable world. Prelude, Chapters 1 &2 o Lawson, B. (2006). How designers think. Chapters 1 & 2 o Pachler, N., Bachmair, B. & Cook, J. (2010), Chapter 1
Week 2 Sept 6	No Class – Labor Day	
Week 3 Sept 13 **Online**	The Science and Art of Design The First Tradition The Service of Design The Changing Role of Designer Charting Conceptual Space of the Mobile Complex	o Nelson, H.G. & Stolterman, E. (2003). The design way: intentional change in an unpredictable world. Chapters 3 o Lawson, B. (2006). How designers think. Chapter 3 o Pachler, N., Bachmair, B. & Cook, J. (2010), Chapter 2
Week 4 Sept 20 **F-to-F (new time?)**	The Systems of Design Route Maps of Design Process Mobile Learning: A Topography	o Nelson, H.G. & Stolterman, E. (2003). The design way: intentional change in an unpredictable world. Chapters 4&5 o Lawson, B. (2006). How designers think. Chapter 4 o Pachler, N., Bachmair, B. & Cook, J. (2010), Chapter 3
Week 5 Sept 27 **F-to-F**	The Whole of Design Desiderata: Design as Change Components of Design Problems Mobile Devices as Resources for Learning	o Nelson, H.G. & Stolterman, E. (2003). The design way: intentional change in an unpredictable world. Chapter 6 o Lawson, B. (2006). How designers think. Chapter 5 o Pachler, N., Bachmair, B. & Cook, J. (2010), Chapter 4
Week 6 Oct 4 **F-to-F (12:30-1:30)**	Interpretation and Measurement in Design Measurement, criteria and judgment in design Cases of Mobile Learning	o Nelson, H.G. & Stolterman, E. (2003). The design way: intentional change in an unpredictable world. Chapters 7 o Lawson, B. (2006). How designers think. Chapter 6

		o Pachler, N., Bachmair, B. & Cook, J. (2010), Chapter 5
Week 7 Oct 12* (Tues) **Online**	Imagination, Communication in Design A Model of Design Problems Socio-Cultural Ecology of Learning with Mobile Devices	o Nelson, H.G. & Stolterman, E. (2003). The design way: intentional change in an unpredictable world. Chapters 8 o Lawson, B. (2006). How designers think. Chapter 7 o Pachler, N., Bachmair, B. & Cook, J. (2010), Chapter 6
Week 8 Oct 18 **Online**	Judgment in Design Problems, Solutions and the Design Process Analyzing the Mobile Complex for Education	o Nelson, H.G. & Stolterman, E. (2003). The design way: intentional change in an unpredictable world. Chapters 9 o Lawson, B. (2006). How designers think. Chapter 8 o Pachler, N., Bachmair, B. & Cook, J. (2010), Chapter 7
Week 9 Oct 25 **F-to-F**	Composition of Design Types and Styles of Thinking Social Semiotic Analysis of Mobile Devices	o Nelson, H.G. & Stolterman, E. (2003). The design way: intentional change in an unpredictable world. Chapters 10 o Lawson, B. (2006). How designers think. Chapter 9 o Pachler, N., Bachmair, B. & Cook, J. (2010), Chapter 8
Week 10 Nov 1 **Online**	Production and Care Taking of Design Creative Thinking The Mobile Complex, Socialization and Learning Resources	o Nelson, H.G. & Stolterman, E. (2003). The design way: intentional change in an unpredictable world. Chapters 11 o Lawson, B. (2006). How designers think. Chapters 10&11 o Pachler, N., Bachmair, B. & Cook, J. (2010), Chapter 9
Week 11 Nov 8 **F-to-F**	The Guarantor-of-Design Guiding Principles Design Strategies Appropriation and Learning	o Nelson, H.G. & Stolterman, E. (2003). The design way: intentional change in an unpredictable world. Chapters 12 o Lawson, B. (2006). How designers think. Chapters 12&13 o Pachler, N., Bachmair, B. & Cook, J. (2010), Chapter 10
Week 12 Nov 15 **Online**	Design Tactics Design Traps At Risk Learners: Their Contextual and Conversational Options	o Nelson, H.G. & Stolterman, E. (2003). The design way: intentional change in an unpredictable world. Chapters 13 o Lawson, B. (2006). How designers think. Chapter 14&15 o Pachler, N., Bachmair, B. & Cook, J. (2010), Chapter 7
Week13 Nov 22	The Splendor of Design Designing with Others	o Nelson, H.G. & Stolterman, E. (2003). The design way: intentional change in an

Online	Design as Conversation and Perception User-Generated Content and Contexts	unpredictable world. Chapters 14 o Pachler, N., Bachmair, B. & Cook, J. (2010), Chapter 12
Week 14 Nov 29 **F-to-F**	Design Character and Competence	• Presentation of Data Collection and Initial Analysis
Week 15 Dec 6 **F-to-F**	Peer Feedback on Data Collection and Initial Written Analysis or Section	• Presentation of Data Collection and Initial Analysis
Week16	Final Paper Section Due!	

COLLEGE OF EDUCATION AND HUMAN DEVELOPMENT STATEMENT OF EXPECTATIONS:

All students must abide by the following:

Students are expected to exhibit professional behavior and dispositions. See http://gse.gmu.edu/facultystaffres/profdisp.htm for a listing of these dispositions.

Students must follow the guidelines of the University Honor Code. See http://www.gmu.edu/catalog/apolicies/#Anchor12 for the full honor code.

Students must agree to abide by the university policy for Responsible Use of Computing. See http://www.gmu.edu/facstaff/policy/newpolicy/1301gen.html.
Click on responsible Use of Computing Policy at the bottom of the screen.

Students with disabilities who seek accommodations in a course must be registered with the GMU Disability Resource Center (DRC) and inform the instructor, in writing, at the beginning of the semester. See http://www.gmu.edu/student/drc/ or call 703-993-2474 to access the DRC.