Competency 1: Technology Planning and Integration
Online Course (re)Design Artifact

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Introduction:

Online course and degree offerings have been steadily growing in popularity because of their relative cost-effectiveness, increased student reach by way of numbers and geography, ability to involve expertise from a variety of locations, easy access to digitized library resources, and the ability to use rich media to present content and concepts. The inherent flexibility of time and place makes it attractive for non-traditional students (working adults), students from remote areas and those with disabilities who cannot easily attend a traditional college due to time, physical and distance constraints (Lynch, 2003).

However, in this shift from classroom to online learning, little do the course instructors realize how different the online learning environment is from a traditional face-to-face one and the challenges it presents in terms of creating social presence, student participation, engagement, interaction, maintaining academic rigor and integrity and evaluating outcomes. Teachers struggle with the change in teaching paradigm from didactic to that of facilitator and mentor and miss the social context of the classroom where they gain validation from non-verbal cues. They also do not foresee the volume of emails and written communication (feedbacks, comments) they have to handle and cross cultural differences in communication styles, nor that they may have to schedule non-traditional office hours to accommodate student's needs. Furthermore, used to a 'lesson plan' approach they find themselves hard-pressed to provide meaningful learning and assessment activities to suit a varied class profile and are often second guessing themselves about the soundness of the exercises (Lynch, 2003).

Thus 'offering' an online course is not a matter of just putting resources online – but a much wider undertaking. Attention has to be paid to visual design, instructional design, managing and organizing content, understanding affordances and limitations of the technology and even attending to nitty-gritty details like file formats and defunct web links. These are things faculty are not equipped to do and typically, there is little or no training or help available for them, resulting in them feeling overwhelmed, working harder and longer than they bargained for (Lynch 2003). This is what the faculty at a Midwestern university offering an online post-professional doctoral course had come to realize when they sought the help of an instructional design and technology consultant to help overcome their problems.

Context of the Project:

The redesign of the Post-Professional Doctor of Physical Therapy course hosted on the Angel Learning Management System for Des Moines University College of Health Sciences was carried out in two phases. Phase I[1], Program Analysis, was done by the author along with a

[1] Phase I Analysis : Program components and design, course organization, content delivery methods, ease of navigation and access, assessment strategies and student support were analyzed in two courses (Orientation and Clinical Medicine 1608) within the program to determine efficiency (in terms of time invested), effectiveness (in terms of desired outcomes) and alignment of course objects with activities and assessments. (Learning Design Solutions Agreement for Services No.000700137, March 2011

supervising faculty member as part of Learning Design Solutions (a student-led enterprise within the department of Curriculum and Instruction) and, as such, is beyond the scope of the present project. Results of the analyses pertaining to the present project will be referred to where relevant. Phase II was the Implementation wherein some of the most critical observations made in Phase I were contracted to the author as an independent contract. The author implemented the desired changes with the help of a programmer cum graphic designer employed by her on an hourly basis. The process involved in the implementation is relevant to *Competency 1: Technology Planning and Integration* and will be discussed in detail.

Des Moines University (DMU) located in the capital city of Iowa, USA, is a medical and health sciences university comprising of three colleges: College of Health Sciences, College of Osteopathic Medicine and College of Podiatric Medicine and Surgery. The University has a total enrollment of over 1800 students pursuing graduate professional degrees. It is accredited by the Higher Learning Commission of the North Central Association of Colleges and Schools. Des Moines University offers five Masters level degree programs and four Doctoral Degree Programs of which the Post-Professional Doctor of Physical Therapy (PPDPT) is one of them (http://www.dmu.edu/about/). It is the only Doctoral program at DMU and one of the only PPDPT programs in the nation that is offered completely online, thus presenting physical therapists around the world a way to advance their careers while continuing their practice. It aims to build on the existing knowledge of licensed physical therapists by enhancing their clinical competencies and decision-making skills for developing therapeutic plans. The program also emphasizes administrative and management skills and evidenced based practice to provide more effective patient care (http://www.dmu.edu/ppdpt/).

Student Profile:

Since its inception in 2003, enrollments to the online PPDPT program have been from countries as varied as Canada, Europe, India and Philippines and even from the U.S. Military. They are all practicing physical therapists who rely on their earnings to pay tuition and have very busy professional and personal lives. Approximately 35% - 45% of those enrolled were non-native English speakers. On an average, they have 150 students enrolled. Each instructor has 2 sections of 20 students each. In 2010, when this project was undertaken, they had only 2 or 3 full time faculty sharing the workload with some courses being facilitated by visiting faculty and adjuncts (Meeting minutes, October 4, 2010).

Program Features:

The strength of the program is that it is offered online giving the students the option to complete course work at their convenience. Each course has a specific start and stop date and specific due dates for assignments. However, it is flexible in that students can enroll any time and with the exception of the Orientation course that is required at the start of the program, courses can be taken in whatever order they choose. The PPDPT degree is granted on successful completion of 24 credits spread over 11 courses, each course being 8 weeks in length. The curriculum and assignments are designed for collaborative project work, online discussions and case studies that can find immediate application to the student's own clinical context (http://www.dmu.edu/ppdpt/program-strengths/). Thus, the course provides the framework for 'situated learning' giving students the opportunity to make sense of and implement what they learn

in their particular context and collaboratively grow their expertise and knowledge by sharing professional experiences, insights and resources with their class colleagues from around the world.

Needs Assessment

A systematic needs assessment was carried out to gather information about the nature of the problems faced by the faculty that prompted them to seek help. This was done by arranging on-site meetings involving first the faculty only and then subsequently other program staff and IT staff of DMU to provide inputs on questions arising after a detailed examination of the structure and tools of the Angel Learning Management System. Communication via emails and meetings with the faculty, staff and IT personnel was maintained throughout the course redesign process to obtain approvals as well as server-side technological help that I, as an external contractor, could not have access to.

Faculty Concerns about the Program:

Such a program, as described above, needs very sound online course design and delivery. However, in meetings with the faculty, it was clear that they had several concerns about time and workload management, effectiveness of pedagogical and assessment strategies, issues with student participation, academic integrity and creating a congenial environment for group work.

Workload

The instructors were feeling the pressure of dealing with a student profile much different than what their previous experience had been (undergraduate/graduate versus self-driven professionals). They realized they had to stay away from assessing content knowledge and lay emphasis on analysis and application such as asking students to formulate individualized plans applicable to their patients and clinics. However, it was turning out to be an enormous task grading customized plans of 40 students so much so that the Director of the program was afraid that she may lose her faculty (Meeting minutes, October 4, 2010 and October 18, 2010).

Rigor

At the same time that the instructors were concerned about workload, they wanted to make sure that the program had enough rigor and had built in a variety of individual and group assignments (small group discussions, case studies, individual papers, research poster projects and peer reviews) – basically an assignment every week besides the readings and quizzes. They wondered though if it was necessary to have a submission every week – and if not – how much is sufficient rigor? Were they asking for too much? The questions reminded me of a comment by Lynch (2003, p. 24)

> *"Perhaps we should ask ourselves if, in our attempt to ensure academic rigor, we have made the online classes more rigorous and thus at a disadvantage"*

Student Participation and Collaboration

The course was asynchronous and student-instructor interaction took the shape of one-on-one emails, comments on discussions and an hour-long synchronous chat session every week. On an average, a quarter to a third of the class participated in these chat sessions. The bigger problem they were facing was with group work and creating an environment of mutual respect. Teams were

assigned based on similarities in their current practice or around their preferred work schedule. However, the instructors often had to deal with conflicts and complaints of over dominance of a certain group member or non-participation of another, which affected the morale and work of the others. They needed strategies to address these issues and create the support where students would know clearly what to do if they have problems with teamwork (Meeting minutes, October 18, 2010).

Academic Dishonesty

Another issue plaguing the instructors was plagiarism. The Orientation course had a very good interactive unit on plagiarism as well as other writing resources and academic honesty was stressed in the writing policies and code of conduct too. Moreover, in the Orientation course, the students had an assignment to review an article and submit a summary to the program 'Turnitin' which detected plagiarized language and its source. All research papers in subsequent courses also had to be submitted via the Turnitin drop box by the students. Despite this, cases of plagiarism abounded. The instructors were at a loss to understand whether it was a factor of differences in cultural attitude and language, a factor of the content material itself or a problem with students not going through the tutorials at all. They needed an honest evaluation and redesign of the plagiarism module and a new assessment activity for it (Meeting minutes, October 18, 2010).

Increase in interactivity and visual appeal:

Most of the content material, including the Welcome messages in the Orientation course were in the form of PowerPoint presentations or narrated PowerPoint presentations. The faculty had no expertise nor the time and support to design them otherwise. Furthermore, they felt that the online course design was very plain and lacked visual impact. They recognized the need for more interactivity in content delivery as well as creating a visual appeal and feel for the course as a whole.

Course Analysis

For budgetary reasons, the decision was to redesign the Orientation course, which served as the window to the program. It was important in setting the tone for the rest of the courses and in laying the groundwork for students to successfully negotiate the program. The Orientation course included basic program information (faculty roles, contacts, helpdesk, software links) and tutorials to familiarize themselves with the Angel Learning Management System, library resources and search engines as well as discussion boards and course mails. The course also contained tutorials and quizzes on evidence based practice, which is methodology of research based physical therapy practiced by DMU, as well as information and resources on plagiarism.

Results of Analysis:

A systematic analysis of the content files of each lesson folder in the Orientation course using principles of online instructional design, adult learning, and visual design revealed that there were major problems with 1) course organization, 2) navigation and ease of use, 3) content design and delivery, 4) scaffolding of content, 5) assessment of some content, 6) overall visual design and 7) a complete lack of interactivity and human presence. Efficiency of navigation and file access was impaired due to outdated links, technological incompatibility and inconsistency in file format,

which served to disrupt the flow of instruction and cause frustration to the students. Some important course content like Evidenced Based Learning were not clearly justified to the adult learners and information on plagiarism, though present, was just another folder amongst many and not stressed adequately by language, placement or related assessment (DMU-PPDPT Program Analysis Report, May 2011). It was evident that the course needed major overhaul in its content organization along with appropriate visual design to create clarity, attention allocation and emphasis (Harms, Niederhauser, Davis, Roblyer, & Gilbert, 2006) and strategies for creating social presence.

The shortcomings of the Orientation Course identified during the above course analysis are presented in Table 1 in the form of a checklist using relevant criteria adapted from the California State University Chico Rubric for Online Instruction (Chico Rubric). The Chico Rubric details comprehensive benchmarks for evaluating online courses on 6 key elements such as Online Organization and Design, Instructional Design and Delivery, Learner Support and Resources, Innovative Teaching with Technology etc. This rubric serves as a very useful self-evaluation tool wherein each element of an online course can be evaluated on a three-point scale as Baseline, Effective or Exemplary (http://www.csuchico.edu/roi/the_rubric.shtml).The course elements that were analyzed are assigned the appropriate grade from Baseline to Exemplary in the checklist, giving a concise account of the strengths and weaknesses of the course before the redesign. In the next section (Redesign), these elements are elaborated upon with screenshots and comments on how they negatively impact online instruction followed by the solution implemented along with designer reasoning behind it supported by literature.

Unit of Analysis	Conditions	Baseline	Effective	Exemplary
Online Organization and Design				
Course Organization and Structure	Course is well organized. Course components and structure is easy to understand	☒		
	Course is Easy to Navigate	☒		
Course Syllabus	The syllabus clearly identified what role the online environment would play in the course.			☑
Aesthetic Design	Aesthetic design presents and communicates course information clearly throughout the course	☒		
Consistency	Webpages are visually and functionally consistent throughout the course	☒		

Instructional Design and Delivery				
Communication and Interaction	Course offers ample opportunities for communication and interaction between student to student, student to instructor and student to content	☒		
Enhancing student learning	Course provides multiple visual, textual, kinesthetic and/or auditory activities to enhance student learning and accessibility	☒		
Innovative Teaching with Technology				
Use of Technology	Course uses a variety of technology tools to appropriately facilitate learning	☒		
Interactive Teaching	New teaching methods are applied to enhance student learning and interactively engage students	☒		
Learner Support				
Support for Course Content	Course offers access to a wide range of resources supporting course content	☒		

Table 1: Results of analysis of PPDPT Orientation Course using evaluation criteria adapted from Rubric for Online Instruction (http://www.csuchico.edu/celt/roi/index.shtml).

Course Redesign

The contract for the redesign project was signed on July 10, 2011. Its objectives were to implement a visual redesign of the Orientation course, giving it a homepage and visual identity; reorganize course folders and restructure content and navigation for fluidity; design and implement strategies to increase student interaction and social presence; design activities and assessments for plagiarism; and integrating all the new activities and content with existing ones for cohesiveness.

Online Organization and Design

Course Organization and Structure:

Organizing course content, information, resources and activities in a logical, accessible manner is essential for creating structure and context within a course. A well-structured course that is easy to navigate conveys clarity about learning goals, expectations, responsibilities and requirements for success and facilitates learning by allowing students to connect with the content without guessing at its purpose within the course (Berge, 2002; Lewis & Abdul-Hamid, 2006). For the novice online learner, lack of structure and problems of navigation and access can enhance

negative emotions of anxiety, isolation and fear about the online learning methodology that hinder full student participation (Zembylas, Theodorou & Pavlakis, 2008). Adult learners as well as experienced faculty have consistently ranked good course organization as the most valued element of an online course for the structure and stability it provides in charting the road ahead and providing student support to keep them motivated and on-track (Ausburn, 2004; Lewis & Abdul-Hamid, 2006; Bailey & Card, 2009). Thus, good course organization makes the learning experience enjoyable and manageable for both faculty and students.

Berge (2002) suggests that investing some time and effort in 'pre-learning activities' facilitates learning by setting the stage for students to negotiate online courses and interact more meaningfully in the online environment. In this context, the PPDPT Orientation Course was designed with just that in mind. The course content comprised of documents, tutorials, activities and variety of resources to familiarize students with the course technology (Angel LMS, Microsoft Office, library search engines), requirements and procedures (submitting assignments through Turnitin dropbox), collaborative and learning spaces (discussion forums, chats), academic policies and standards (plagiarism, evidence based practice) and other information they would need for full participation in the course. However, the effectiveness of the course was impaired by problematic navigation, lack of concise organization, dead (non-working) links and inconsistent file formats.

Content Organization and Sequencing

The course materials were originally organized into eight folders in the Lessons tab, grouped by topic (Figure 1). Each folder had subfolders within it, further splitting the content into individual topics and within these subfolders were located the content files (Figure 2-3). Sometimes the subfolders also contained multiple files due to hairsplitting of the instruction into its component parts so much so that some files were just a couple of lines of information (Figure 4). Such over-categorization may be a good system for personal files on a personal computer but is actually counter-intuitive in an online learning environment and just serves to bury the content deeper making it hard to find. Besides, it also overwhelms the learner by conveying a false sense of the sheer volume of material to be covered. The sequencing of the topics also seems to be random and did not follow any thematic order for knowledge development, with topics dealing with methodology (plagiarism, evidence based practice) interspersed with procedural how-to topics (Angel navigation, Library resources) (Figure 1).

Inefficient Navigation and Inconsistencies

Moreover, the multiplicity of folders and files made for cumbersome navigation requiring several clicks to get to the content (Figures 1-3). Even after that, depending on the file format (.doc, .ppt, .pdf or video) the files themselves took almost 3 clicks to launch, sometimes opening in a separate window, navigating away from the course page, contributing to an inconsistent experience of the course pages (Video 1). Inefficient navigation, non-functional web links and inconsistent file access creates unpredictability and frustration for the online student and can disrupt the flow of instruction by drawing attention to the technology of the delivery system rather than allowing focus on the learning experience. Pedagogically, this is a loss because instead of harnessing the enthusiasm and momentum of new students, they are frustrated and may either lose interest or perceive the technology as too difficult.

Video 1
Video screen capture showing inefficient navigation and file access in the Welcome folder content file. This video may also be accessed at http://youtu.be/iWKMkKiaMM0

Loss in Placement:

The organization of files within the folders was also at times misplaced and redundant. For example, the Welcome folder had in it instructions for using and forwarding webmail as well as software agreements without any explanation for their placement in this folder (Figure 5). Software downloads links were often present in folders to enable content viewing, but their purpose would have been better served if placed alongside the videos rather than as discrete items. But in the most glaring example of redundancy, instructions on how to log into Angel were placed inside the Angel navigation folder - accessible only once the student has already logged in! These instructions belong on the Angel home page where log-in occurs from and their placement here is pointless (Figure 2 – items highlighted in rectangles).

Course Reorganization

As evident from above, proper sequencing of content in a course is important for setting a context and framework for effective learning. In an online environment it is even more important as the sequence implies structure and allows the students to form a concept of the larger picture as they progress in their learning. Posner and Strike (as cited in Morrison, Ross, & Kemp, 2007 pp. 132-138) have enumerated three main sequencing schemes for organizing course content of which two are of importance in the redesign namely, Learning-Related Sequencing and Concept-Related Sequencing. In Learner Related Sequencing, the learning content can be arranged according to schemes based on five student learning concepts namely identifiable pre-requisites (know letters to form words), familiarity (known to unknown), difficulty (easy to hard), interest (capture interest before details) and development (reach a certain proficeincy in A before moving to B). In Concept-Related Sequencing, content is organized conceptually by their class-relations, sophistication, logical prerequitie and propositional relations (Morrison et al., 2007). Choice of sequencing scheme depends on the nature of the content and its purpose (learning goals). Since the Orientation course had a very eclectic collection of content with the purpose of preparing students to negotiate various aspects of the PPDPT Program, a combination of concept-related and learner-related sequencing schemes were followed to reorganize the mixed bag of contents into a structured whole.

Giving the Course a Conceptual Structure

To begin with, the sense of excessive ‘volume’ of content was dealt with by reducing the number of folders into which content was distributed. Course content was re-organized by their class relations, keeping content that served the same conceptual purpose in the course together. For example, the ‘Evidence Based Practice’, ‘Plagiarism Tutorial’ and ‘Library Resources’ were grouped together in a folder called “Program Orientation” as these were all resources that aided in developing research skills, attitude, practices and working style, which would take center-stage in

Figure 1 (top): Course organized into 8 main folders by topic; Figure 2 (left): Several subfolders within the main folder for one of the tutorials; Figure 3 (right): Content files within one of the subfolders.

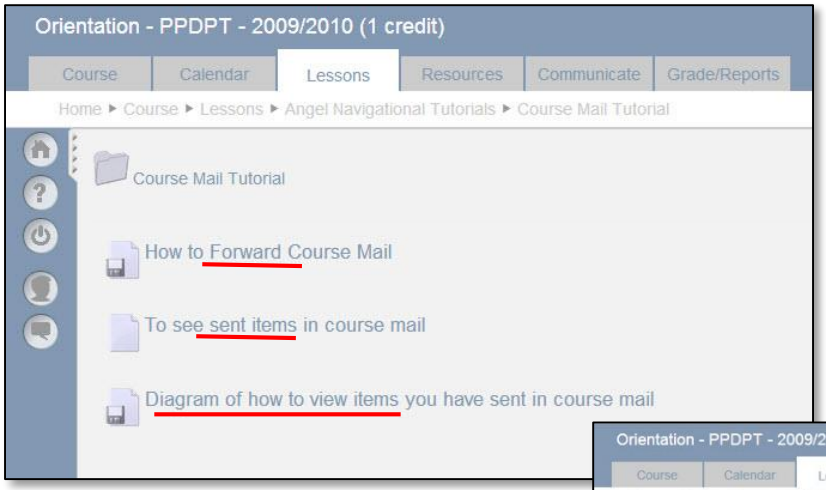


Figure 4: Hair splitting of instructional content into multiple files of different formats, disrupting the flow of instruction and lending to visual inconsistency.

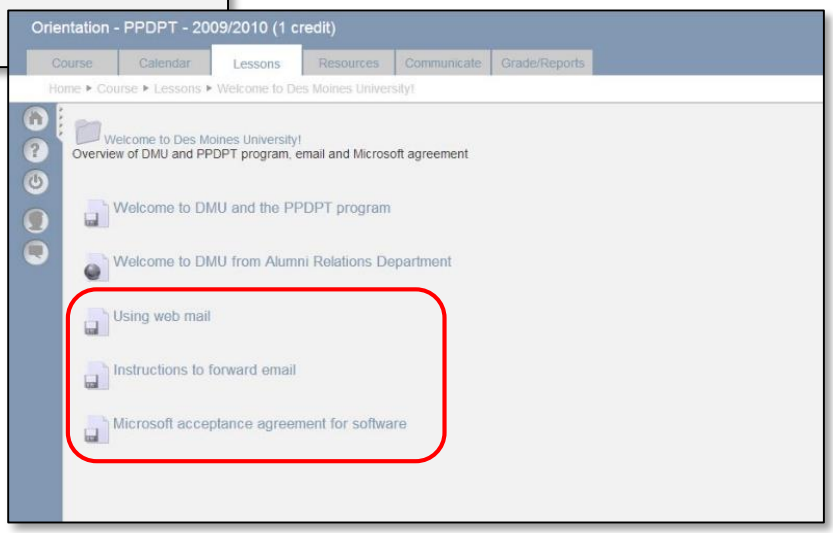


Figure 5: Misplaced and stray content files in need of integration with larger content.

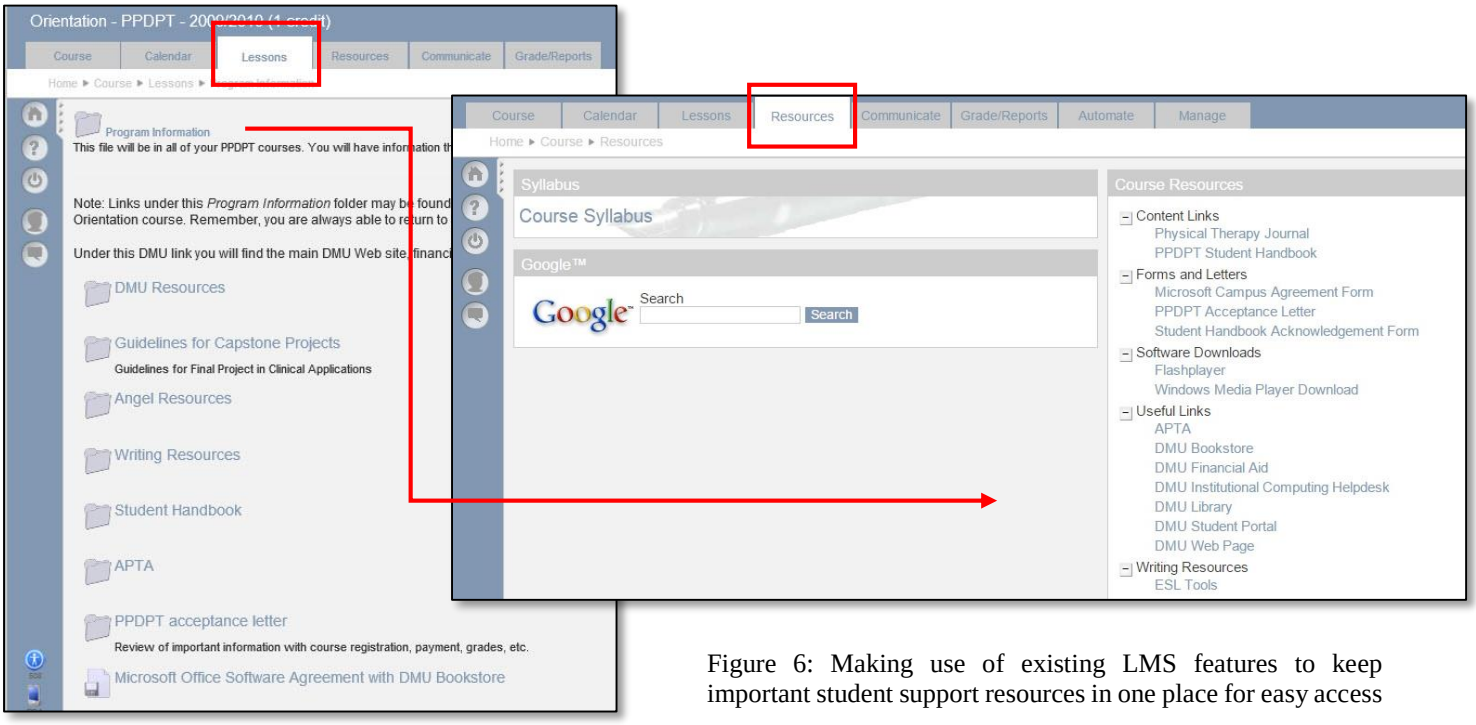


Figure 6: Making use of existing LMS features to keep important student support resources in one place for easy access

the main PPDPT program. The 'Assignments' folder with subfolders containing each individual assignment was deleted and the assignments were integrated into the relevant content pages as a logical conclusion to the unit or units. This gave clarity to the assignments and apart from reducinga folder, eliminated the constant back and forth for students as they would have tried to connect the assignment activity with the unit(s) they needed to review for it. The folders 'Program Information' and 'External Links' were just repetitions of resources already present in other folders. These folders were eliminated and the content moved to the so far underused Angel 'Resources' tab to house these important resources in one place for easy access (Figure 6). In this way, eight course folders were condensed to five (Figure 8).

Content Reorganization: Keeping the Learner in mind:

Thus, by logically putting information that belongs together, a crisp, cohesive course structure was formed. Once the course structure had been laid out with concept-related sequencing, the content *within* the folders were ordered according to learner-centered sequencing schemes. For example, new students would naturally have a lot of questions about the university, the instructors and course requirements and some may even be nervous about the online environment. Taking this into consideration, the contents of the Welcome folder were arranged by identifiable pre-requisites to first introduce students to the insititution and its personnel (Welcome Messages), then give them a sense of what learning in an online environment entails (Welcome to Online Learning), followed by general program information and FAQ's (Getting Started) which also included setting up communication tools (Webmail) that would give them their institutional identity (Figure 7).

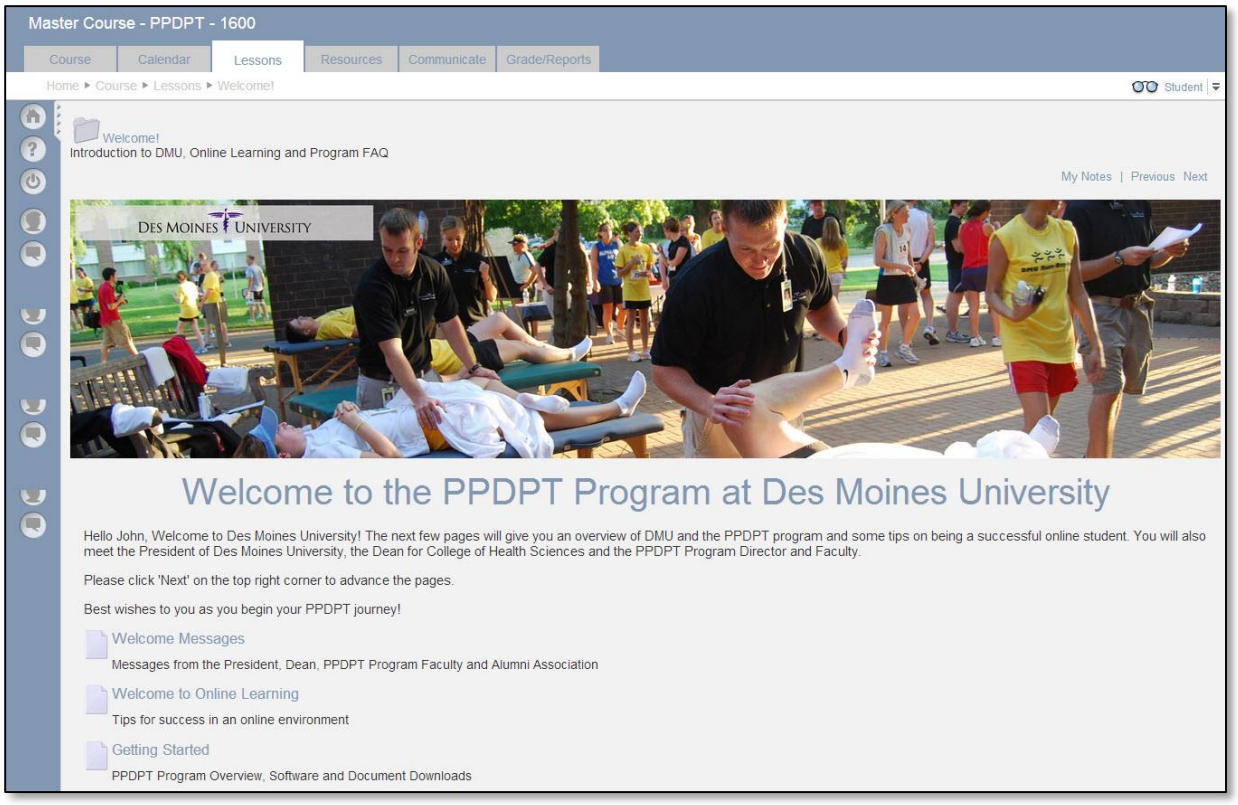


Figure 7: Arranging content within the folders using learner-centered sequencing of identifiable pre-requisites.

Integrating splintered content:

Multiplicity of files within tutorial folders that occurred due to the instructional content being split into its component parts (mentioned above – Figure 4) was eliminated by designing a single integrated instructional page with hyper links to navigate to the section of the student's choice, with the option to print the instruction (Video 2). Splintered instructional files such as using webmail present in the old Welcome folder were also integrated into the Program FAQ's. Care was also taken to provide a predictable, consistent navigation experience of the pages by ensuring that all content links were updated and all content files were converted to .pdf to open quickly and efficiently in the LMS window and not navigate away from it.

Video 2
New printable pages created to integrate splintered instructional files into cohesive whole and eliminate multiplicity. This video may also be accessed from: http://youtu.be/McMvX_o-oTM

Higher Level Ordering:

The higher-level ordering of the folders on the homepage that established the overall course framework followed a combination of different learner-centered sequencing schemes. For example, since it was an orientation course and the first course that students encountered in the program, the most important identifiable pre-requisite was that they be made to feel welcome and a part of the institution and be given the basic structure of the program. Thus, the Welcome folder was placed on the top of the series (Figure 8). The next thing was to capture student interest and give them an opportunity to establish their own social presence in the course while also giving the instructors some crucial background information. So a fun, informal autobiography assignment was crafted from an already existing one (details follow in a later section) to create learner interest and this was placed second in the series. Then by order of difficulty and identifiable prequisites,

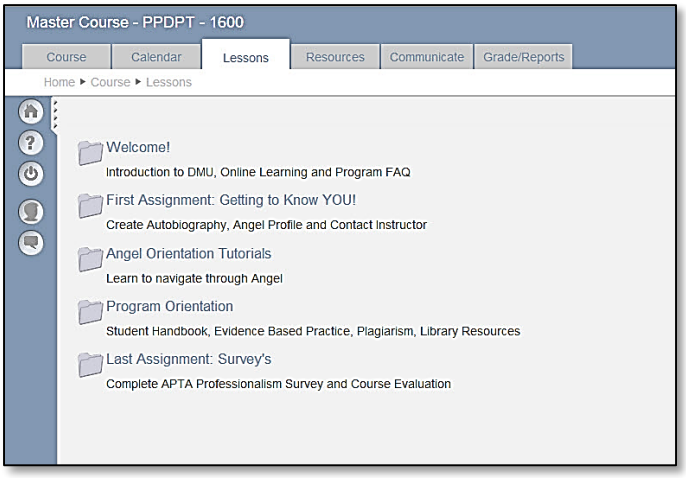


Figure 8: Restructured course with five folders housing content grouped by class relations and arranged sequentially by learner-oriented schemes.

Angel navigation tutorials were placed third in the series of instruction as simple how-tos followed by Program Orientation which had instructional activity that needed more critical thinking and application to self. The course was wrapped up with the Final Assignment, which was just a checklist and surveys (which didn't have a place anywhere else but made sense as a concluding activity), bringing the course to a logical close.

Aesthetic Design

We live in a media-driven world where visuals play an important role in conveying information by use of color, images, placement, text, size etc. that subconsciously leave an impression on us such as 'boring', 'interesting', 'childish' or 'professional'. In an online course, where the computer screen serves as the portal of entry into the course, the homepage design is of paramount importance in creating the first visual impact on the student and drawing him in. If it is a novice user, it is going to make all the difference between making him feel welcome or isolated.

Homepage

In this context, the PPDPT Orientation course on Angel had a very plain, text predominant homepage with a welcome message and a few inbuilt functional modules (called 'nuggets') for course mail, syllabus and live chat. The banner of Des Moines University with its logo was the only 'visual' that conveyed contextual information and that was also a very pixelated picture, probably being a low-resolution file being 'stretched' banner length (Fig 9). The color scheme on

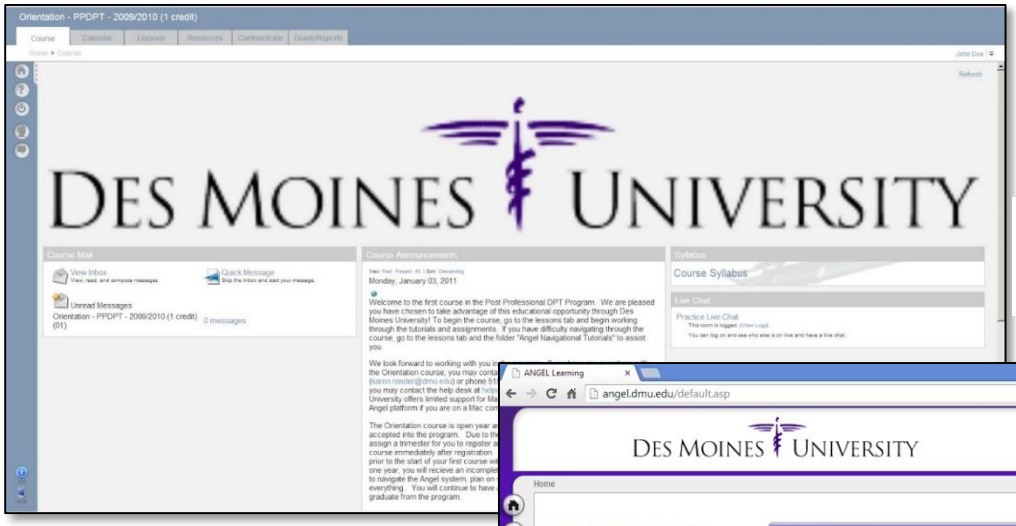


Figure 9: Orientation Homepage before redesign but after implementation of new skin

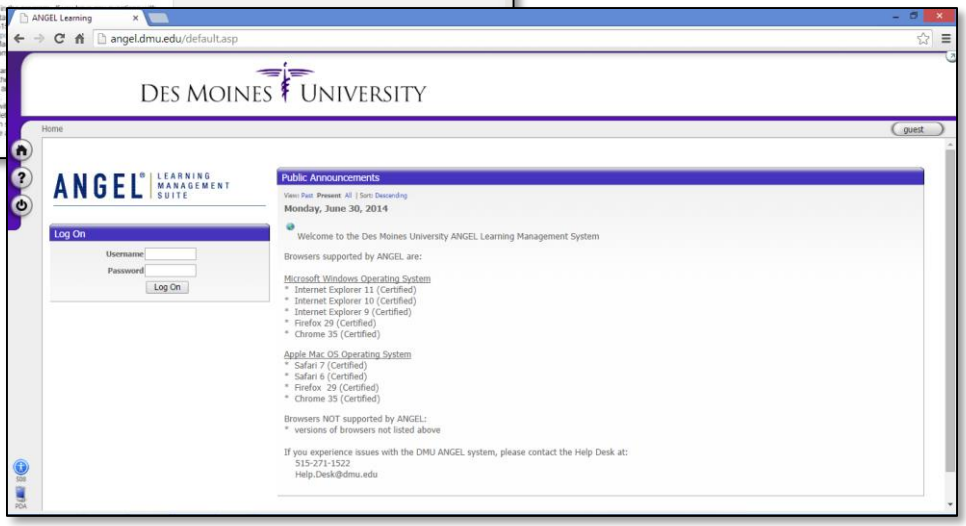


Figure 10: Original color scheme and skin before the redesign

the homepage shown in Figure 9 were after the redesign process had begun and the 'new skin' had been implemented. Before this, it was just default colors as on the log-in page (Fig 10). While it's a simple, no-nonsense page, it is missing out on some key functions that a homepage performs.

Lynch (2003), when talking about course interface design suggests that the homepage, which serves as an introduction to the course, should be colorful and welcoming, inviting the student to explore the course and introduce the instructors. The biggest drawback of the original homepage, in my opinion, was the complete absence of the human element and lack of any context creation to provide students a sense of what Des Moines University 'looks or feels' like to help them feel a part of it. The homepage redesign was implemented with this in mind (Figure 11)

Redesign of Homepage

The simple introduction of the banner with a perspective of a DMU building with the DMU official logo added instant color and context to the page, creating a sense of location and was enhanced by a simple table inserted into an Angel 'custom' nugget with faculty and staff pictures in it with their names. There is nothing like smiling faces to make one feel welcome, especially with a simple bit of code that welcomes the user by name, inviting him or her to meet the faculty.

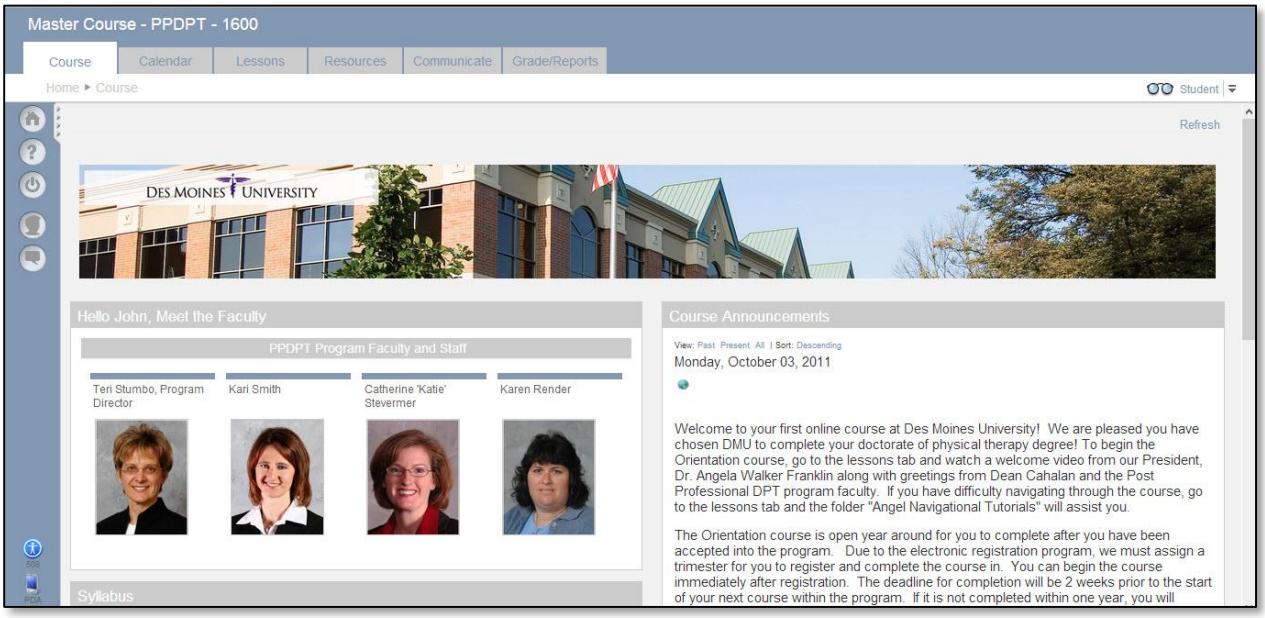


Figure 11: PPDPT Course home page after redesign.

Interactivity on Homepage

This table was made interactive and the pictures linked to the individual faculty profiles on the DMU Website, providing information on their specialization, research interests, publications and contact information (Video 3). This was done specifically keeping the student profile in mind and the importance of allowing them to make a professional connection with the faculty. Since the students are themselves professionals, this information will help them relate much better to their faculty and generate professional respect.

Video 3
Interactive features on the updated homepage introducing program faculty and staff and adding much needed human touch to the course. This video may also be accessed from http://youtu.be/AFnD6VG3QGc

The 'skin' or the color scheme and how the page elements display was also changed using slate-blue, grey and white pallet to make it look more professional to suit the mindset of the users and convey seriousness of purpose. The rounding and glossiness of tabs and outlines in page elements (seen in Fig. 2) were also removed and flattened for a square look with clean lines. This was the **color identity** that was created for the course. The skin also has 'mouse-over' features which stand out and create emphasis when activated by mouse-over by changing color within the grey-blue color pallet. The active course tab on the top of the page stands out as white and slightly larger than the rest.

Course Page Design and Consistency

Similarly, as far as design of the course pages was concerned, the PPDPT Orientation course pages had consistency - in that they were consistently monotonous! Every page had a just text and icons for files, folders or web-links (Figures 1-5). An interactive instruction occasionally livened up the page, but nothing in the page design provided any context or focus that would allow students to tune in to the virtual environment. Online students could be accessing the course from anywhere (work, home or public place) and when they log in, it is important that they be met with a visual that helps refocus on the course despite everything going on around them. According to Harms et.al (2006) a designer can enhance attention allocation by creating an engaging virtual environment. It is thus important to create a course identity with a distinctive 'look and feel' for the course that helps the mind readjust.

Course Page Re-design Elements

Graphic elements on a page not only add visual appeal but also convey information about the content of the page and creates the first impression that will influence the student's subsequent interaction with the content on that page. It is thus important to have an introductory graphic on the page and not just plain pages with content (as the PPDPT Orientation course had). To set the tone for the content to follow, an introductory page was designed for every unit in the course giving a brief overview of the content to be covered, its relevance to the program and directions on how to proceed. This introductory page as well as subsequent content pages within it were customized with a banner made with a relevant image and title setting the context and mood for the unit. As far as possible, graphics relevant to the unit with intensely human qualities or those showing the Des Moines University buildings or grounds were chosen to help virtual students create a mental image and impression of 'being there'.

For example, the introduction page for the 'Getting to Know You' assignment, where the students have to develop a PowerPoint autobiography introducing themselves, has a banner image

of the President of Des Moines University walking with and talking to students in the hallways of DMU – smiling and making eye contact like she really wants to know what they have to say. The title and text talks about the importance of human interaction in bringing richness to an online course and encourages students to create their presence online and get to know their classmates. This explanation forms the rationale for the assignment that follows (Figure 12).

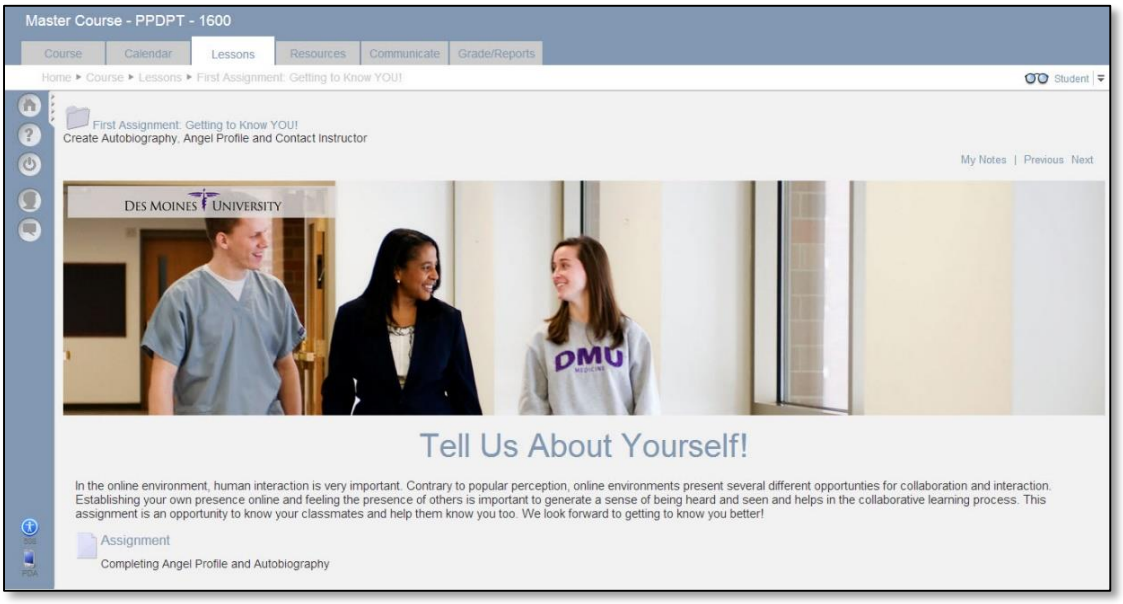


Figure 12: Example of a re-designed course page with a banner image highlighting a friendly ambience consistent with the unit. Other page elements are the title matching the mood of the unit and introduction.

Innovative Banners for Impact

Some units like plagiarism which could not be represented by photos or images were approached innovatively. For the introductory page, a dictionary definition style banner was created which was stark compared to the other pages and got straight to the point. Color (red subconsciously signifying 'important' as well as a censure) and type (italicized lower case font) were used to set it apart from the other headings on the page and create emphasis. The intent was to grab the attention of the students by deviating from the set design and convey the message of 'zero-tolerance' by its bluntness (Figure 13).

Figure 13: Example of innovative banner design in keeping with the content

The plagiarism content page was approached a little differently using caricatured depictions of different acts of plagiarism showing the lighter side of the misconceptions surrounding it. Satirical humor is a powerful tool for revealing the reality and ridiculousness of a situation without getting personal. The intention for taking this approach, apart from arousing the interest of the students, was to put the breadth and complexity of issues that constitute plagiarism in a humorous light and send a message of how important it was for them to go through the tutorial thoroughly if they didn't want to be victims of a caricature-able situation (Figure 14).

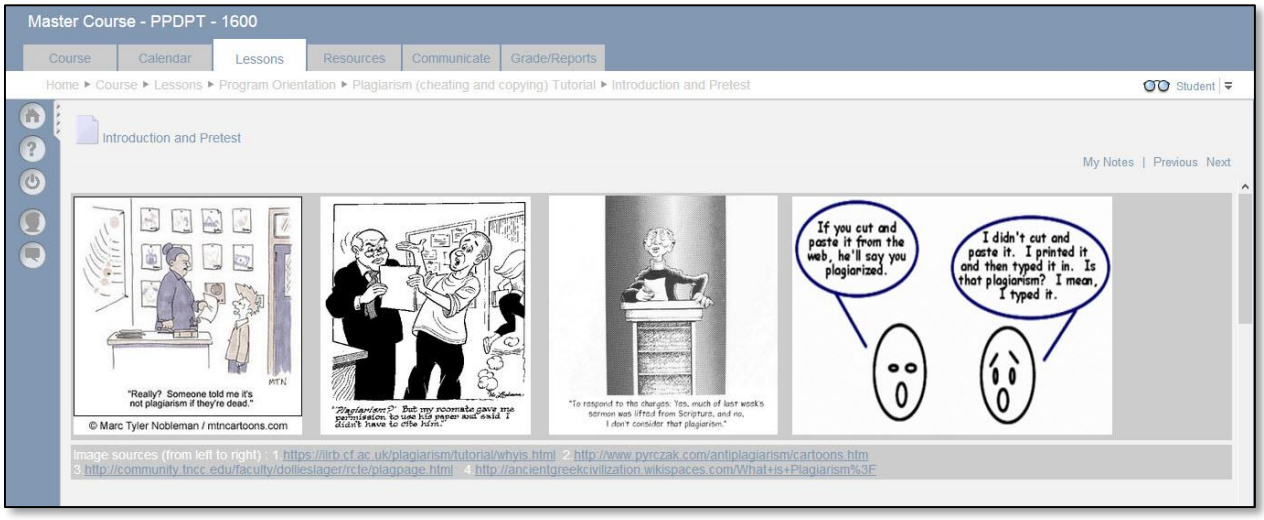
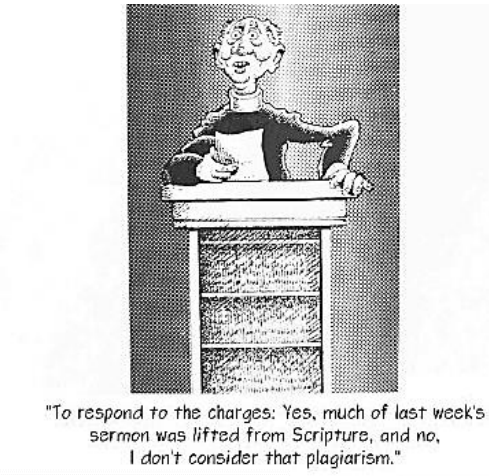
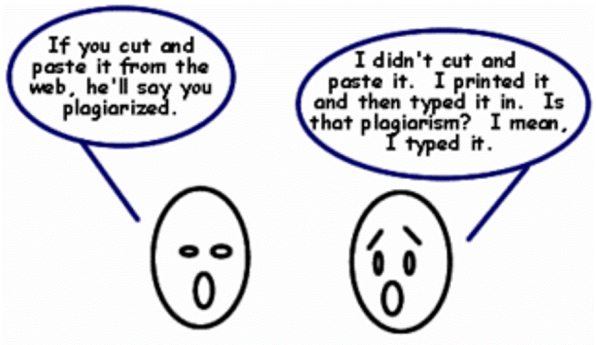


Figure 14: Example of using caricatures as banners to arouse interest and convey complexity of the subject. Caricatures have been enlarged to make them legible.





The banner for the final unit of the Orientation course was the image of a patient in a wheelchair being paced by a therapist. The patient's back is turned to the viewer, but the pacer is looking back, urging him on the long path stretching ahead. This image was chosen to bring the Orientation to a close (depicted by the turned back) and express an attitude of moving forward to the main program courses that lay ahead with the instructors (depicted by the pacer) eager and ready to help them on. It's a positive note to end the course on (Figure 15).

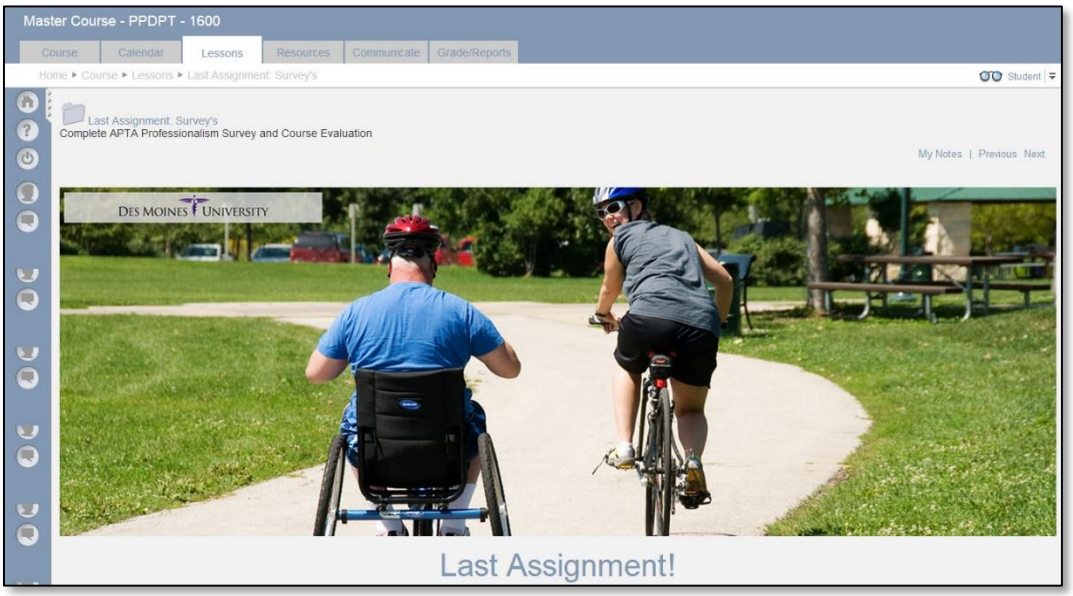


Figure 15: Example of use of graphical metaphors to convey closure and the road ahead.

Thus, by using relevant graphics and following a consistent pattern of design elements (banners, titles, font size and color, layout etc) throughout, all the pages in the course were visually clean and functionally consistent with their graphical message in tune with the content.

Instructional Design and Delivery

The excitement of the educational community with technology mediated instruction is the many possibilities it presents for multiple means of content delivery and communication to make online learning more appealing and engaging beyond mere dissemination of information. But in the hands of instructors invested with the task of designing a distance learning course without sufficient support or training, the affordances a technology offers to shape a different learning experience for students usually go underutilized. The struggle of the DMU-PPDPT faculty in negotiating this aspect of online course was most apparent in the design and delivery of the instruction. For most of their instructional content, the mode of delivery was either text, PowerPoints or narrated PowerPoints. This resulted in a considerable loss of the effectiveness of the message because it is essentially a one-way street.

Welcome Messages

The most significant instance of the message losing its effectiveness by its position and choice of delivery mode were the Welcome messages. The welcome message is very important as it sets the tone for the course and forms student's first impression about the faculty, the online environment and what to expect. It is therefore essential that the welcome message be of a good quality and convey high standards. In the PPDPT Orientation course, the welcome message began with a '*Welcome PowerPoint'* that introduced the program faculty by their photos and gave an overview of the program. It also outlined the major ways in which online learning differed from face to face learning and provided tips on the attitudes, behaviors and habits the students needed to develop in order to successfully participate in an online course. These guidelines were well formulated and the direct question format was helpful for students to relate it with their personal qualities and learning style preferences and prepare them for the online experience (Video 2) (DMU-PPDPT Program Analysis Report, May 2011).

Inadequacies of choice of delivery mode

However, the choice of PowerPoint format for the Welcome message made it very flat and unenthusiastic and coupled with technological glitches, its effectiveness was severely undermined. (Video 1). The attempt to bring audio-visual welcome messages from the Dean and Program Director was the only human touch in the entire course – and showed the kernel of a good idea that they couldn't see through because of the choice of a limiting medium for delivery. Placed in a power point, the students were greeted instead with a first slide of just links. Moreover, the other important information contained in the Program Overview and Introduction to Online Learning were completely lost in emphasis (Video 4). Power points have their place in making presentations but are not the ideal form of delivering content in an asynchronous online environment – nor is it the best use of technology or its affordances.

Video 4
Important program information and welcome messages presented in an un-captivating power point format. This PowerPoint file may also be viewed at https://onedrive.live.com/redir?resid=3D706DD5F28D9199!1092&authkey=!AArZSyEwjbOLGH8&ithint=file%2cpdf

Redesign of Welcome Content

As seen in the Welcome PowerPoint, this one presentation contained many kinds of information with different levels of messages, each warranting a different method of delivery. The crux of effective instructional design is the ability to carve a delivery appropriate to the content of the message. In online instruction, this also means choosing between different kinds of technology applications or interactive features that work best with the intent of the message. Part of the reason for doing this is to keep the content fresh and interesting for the distance learner to maintain attention. Thus, for the different levels of information that was contained in the PowerPoint, different strategies were adopted.

a. Audio-Visual messaging for the greetings
b. Kinesthetic Yes/No activity for Tips for Success in Online Learning
c. Self-select FAQ for Program Information

Only the redesign of the welcome messages has been elaborated below as they filled an essential void in the Orientation course, that of a personal human element.

Welcome Messages: Exploiting an opportunity to create Human Presence

My plan for re-designing the welcome messages was to take the nebulous idea from the PowerPoint video links and develop it fully using the capabilities of the Angel LMS to embed video into its pages. I wanted the welcome videos to be a very smooth experience for the students irrespective of the browser/computer they were using, because it would be their first insight into DMU faculty as well as their first experience of the technology. Some human presence had already been created on the homepage with the interactive faculty grid, but that experience was still text-based and it was important to get the voices and personalities of the faculty to the students for them to establish a full connection. Serendipitously, DMU was in the process of shooting new videos for their website and marketing and not only was I given a video welcome message from the President of the University, but also new videos of the Dean and PPDPT faculty for incorporation into the Welcome. The end result was a welcome message crowded with reassuring human presence!

Another innovative banner design was executed for the Welcome videos using screenshots of the videos and stringing the images together on the banner. Each image was linked to the associated video, making the banner images into navigable elements giving the students a choice to pick the video they want to view. A button link to download Flash was inserted at the top of the page – an example of effective positioning of files at the relevant points of need (Video 5).

Video 5
Welcome Messages with navigable banner and button links to for navigation and software download. This video may also be viewed at http://youtu.be/IlYJZEOuI-c

Social Presence and Student to Student Interaction

While on the topic of human presence (or lack of) in the PPDPT Orientation course, one must also talk about opportunities created (or not) for students to establish their social presence in the course and feel the presence of others. Fostering a sense of presence and student to student interaction is the most important prerequisite to establishing true communities of inquiry and supports its corollary, cognitive presence, which is fundamental to achieving success in higher education, satisfaction and worthwhile educational outcomes (Garrison, Anderson, & Archer, 2000). Social presence has been defined as the ability of participants in an online community to project their full personalities (social and emotional) into the online environment and present themselves as "real people" via the medium of communication. According to Garrison et al.

(2000), "Social presence marks a qualitative difference between a collaborative community of inquiry and a simple process of downloading information*."* (p. 96)

Technology mediated online environments support the creation of social presence, but the process is not automatic. Activities need to be designed that encourage the process. This is especially true for adult learners who return to higher education with complex and contradictory feelings and bring issues to the learning space (such as lack of skills to negotiate the nature of online communication, anxiety about establishing their social and professional identity, nervousness about their ability to meet the learning goals etc.) that can increase feelings of isolation. So it is important to help them find their '*voice*' by developing skills in communicating in the online space (Stein & Wanstreet, 2009).

The non-competitive nature of the Orientation course provides an ideal setting in which students create their 'voice' or social presence and initiate the process of creating a sense of community; establish social and professional connections with other students; and help develop mutual familiarity, trust and respect. This opportunity was however lost by setting a low bar on expectations for communication and sharing. For instance instructions for the discussion board assignment for EBM goals mentioned that "*Commenting on your peer's goals is encouraged, but optional"* and the expectations for discussion postings in the course syllabus discouraged any postings of a non-academic nature. It seems that the purpose of the discussion posting assignment was very narrow, limited to ensuring that students understood how to *make* a posting in a discussion forum and not how to *conduct* a discussion.

Similarly, an opportunity for new students to know their classmates and project their social and professional identities in the course was missed in the 'Autobiography' assignment which unfortunately, was for the instructors eyes only and not shared with other students until later courses in more stressful, competitive settings. As a result, interaction and responses in the discussion forums by students were virtually non-existent and the few responses found were mostly made by the instructor (Kari Smith). It became clear that many of the problems with group work in later courses had its roots in the failure to lay the groundwork for involvement in the Orientation course.

Redesign: Creating social presence and fostering student to student interactions

According to Garrison et al. (2000), there are three indicators for social presence: 1) expression of emotion, 2) open communication, and 3) group cohesion. Since it was too early in the PPDPT course for group cohesion, which in my opinion comes as a consequence of the former two, I will restrict myself to strategies adopted to encourage emotional expression and open communication. An example of emotional expression that brings people together in an online community and contributes to development of social presence is *self-disclosure.* A specific instance of self disclosure is the exchange or sharing of personal information, feelings, attitudes, experiences and interests that helps reduce feelings of isolation knowing there are 'real people' with similar concerns out there and helps establish trust, and support. Examples of open communication are *mutual awareness and recognition*, where responses, rejoinders, expressing appreciation, agreement and encouragement are textual tools that can be used to build and sustain online relationships (Garrison et al., 2000). Keeping these in mind, several strategies for creating social presence and open communication were suggested (DMU-PPDPT Program Analysis

Report, May 2011) and after extensive discussion with the instructors, the following ice-breaker activity was implemented which the instructors felt was most compatible with the open-ended format of the Orientation course and which they were most comfortable executing.

First Assignment: Getting to know YOU: Supporting Self-disclosure, mutual awareness and recognition:

As mentioned earlier, the old Orientation course had an 'Autobiography' assignment in which students were asked to create a 3-6 slide power point biography about themselves with professional and personal facts and a photo if they chose to share. After reading a light article on personality types, they had to choose their personality 'color' and make a slide about how those traits would help them contribute positively to group projects. This was a great activity but again, badly executed, lacking supporting resources (instructions on how to create a PowerPoint) and limited in its vision.

In the redesign, the potential of the autobiography as a means of self-disclosure was exploited to create a platform for sharing and information exchange by tying it to the student profile and roster (another underused feature of the LMS). A two part assignment was designed where after creating their PowerPoint autobiographies, the students had to update their personal information in the roster and upload the autobiography to it, thus opening it up to the other students. Students were encouraged to view the personal profiles and PowerPoints of others. To conclude the assignment, the students had to send a course email to the instructor outlining their expectations for the course. New learning materials were created to facilitate updating the personal profiles and all supporting resources (earlier missing) were supplied and easily accessible. To stimulate a feeling of relaxed 'colorful' exchange, a banner was custom designed and after much searching, the drab, grey resource article was replaced with a new, full color, crisp looking one.

Thus, an opportunity was created for students to project their full and creative personalities, create a social presence, feel the presence of others and that they had a voice in setting the expectations and learning outcomes. Video 6 shows the autobiography assignment before and after redesign and an example of how the roster exercise worked out. In the discussion forum assignments, expectations for responding to others postings were clearly laid out with a requirement to give feedback to the person posting before you. Although I would have liked to see more responses built in and additional ways of creating mutual awareness and responsiveness, the results were a far improvement than the postings before and qualitatively much better (Video 7).

Video 6
Creating social presence through selfdisclosure: the autobiography assignment before and after redesign. This video can also be accessed at http://youtu.be/9XfZFwWpooY

Video 7
Fostering open communication and interaction: Discussion forum postings before and after redesign. This video can also be accessed at http://youtu.be/mm9wNG3Ych0

Plagiarism: Using technology to interactively engage student and enhance learning

Plagiarism is as much an act of intent as it is of lack of information and misunderstanding. The easy accessibility of research papers on every subject on the internet and the pressure to perform amidst looming deadlines certainly creates situations where intentional plagiarism thrives, but for every case like this, there is a case of unintended plagiarism due to lack of knowledge and training about how and when to quote and cite sources and how to paraphrase. Sometimes, it is also an issue of academic culture where students from some countries, used to years of reproducing answers verbatim from the text book or teacher's notes, do not think it amiss to do so in the context of higher education and research. Thus, in a context where there are international students involved at a distance (such as in the PPDPT Course), it is even more imperative to not just convey the concept of plagiarism and its consequences, but also ensure that the students have understood how to avoid it in practice.

The PPDPT Orientation Course had a couple of resources on writing, citation guide and plagiarism, including an interactive slideshow tutorial from Vaughan Memorial Library (this can be viewed from the following link: http://library.acadiau.ca/tutorials/plagiarism/), but this was just passive information with no active interaction between student and content. Moreover, this was the only tutorial that lacked any kind of evaluation of learning. Hence, the problems with plagiarism that the PPDPT instructors faced was because of a deficiency of the instructional design with inadequate student to content interaction and limited assessment.

Interaction between student and content is important to derive the most out of the information and elevate knowledge from declarative forms of learning to higher order thinking and application. According to Lynch (2003), this can be achieved by building in open non-graded activities such as mini-tests and self-assessments that make students think actively about the implications and applications of the information they have just reviewed and receive immediate feedback. In this endeavor, technology can be a friend.

Redesign of plagiarism unit:

The redesign of this unit was done with a singular objective in mind – to provide abundant training and intensive practice whereby students could actively process and make sense of the information in a variety of ways emulating different applications settings. The intent was to reinforce the learning with technology aided interactive exercises. The interactive exercises were chosen from Cardiff University's resources on plagiarism licensed for download and educational use under creative commons (https://ilrb.cf.ac.uk/plagiarism/#page=General) and embedded with the Angel LMS instructional pages using simple <iframe> html coding. This gave the teaching unit cohesiveness and allowed resources to be placed in logical progression. The general format followed was to intersperse content with reinforcement.

The unit began with a simple pre-test (is it plagiarism quiz) where students had to respond yes/no to simple examples and identify if they represented acts of plagiarism. This was done to expose the adult students to the wide variety of situations that constitute plagiarism and through a test of their present state of knowledge and understanding about it, give them a reason to take the tutorials seriously. This was followed by the Vaughan Memorial Library interactive tutorial

mentioned above, that covered the most basic and relevant information on plagiarism and how and when to cite sources and the working discipline one should develop to avoid a last minute scramble to find forgotten references. The tutorial was followed by a drag-and-drop exercise (when to cite) showing examples of referenced and original writing actions which had to be grouped by whether a reference was required for it or not. Next was a resource link to college writing with more in-depth examples and exercises on the topics of quoting, paraphrasing and citing correctly. The information covered in the resource link was reinforced by another exercise (avoiding plagiarism exercise) which tested student's knowledge of paraphrasing and quoting with more complex examples and extracts to choose from and a space for free form text to substantiate their choices.

Thus, as students proceeded through the tutorial, the exercises increased in complexity and required them to reflect on and verbalize their understanding. Most of these interactive exercises posed as assessments (described as 'quiz') but were not graded and could be repeated as many times as needed for self-assessment. Feedback on all of them was also instantaneous with detailed explanations. The last resource was a PowerPoint presentation of DMU's writing policy (minimum requirements for an acceptable paper) and policy on plagiarism. Additional resources like AMA (American Medical Association) citation style guide, writing resources for ESL and more optional exercises were included for students who wanted more practice (Video 8). Throughout the tutorial as well as the course, all sources including banner images not owned by DMU and quotes used in quizzes were credited to model good practice and culture of academic integrity.

Video 8	Video 9
Redesigned plagiarism unit with interactive exercises interspersed with content information to provide practice and reinforcement. This video may also be accessed at http://youtu.be/ZKrsZ82NuvE	New Plagiarism Quiz evaluating student learning with scenario based questions. This video may also be accessed at http://youtu.be/4h2FGFusqCk

As a final assessment of student learning, I designed a very comprehensive quiz in consultation with the instructors using scenarios, multiple choice, true/false and drop down menus to test students on key concepts related to plagiarism, DMU writing policies, interpretation of turnitin reports and AMA citation style. Students had to retake the quiz until they scored 90% correctly on it (Video 9). Thus by incorporating a graded quiz along with interactive and engaging activities to gradually advance students from simple concepts and tasks to those requiring critical thinking and active processing of information, the plagiarism tutorial was given the teeth it lacked. The design of the unit seems to have been very effective. In a meeting with one of the DMU-PPDPT instructors to discuss my use of the re-design project for my creative component, I was informed that instances of plagiarism were down significantly since the incorporation of the redesigned course (Catherine Stevermer, personal communication August 23, 2013).

Self-evaluation of Redesigned Course:
Thus, the course report card as I evaluate it after the redesign stands as under:

Unit of Analysis	Conditions	Baseline	Effective	Exemplary
Online Organization and Design				
Course Organization and Structure	Course is well organized. Course components and structure is easy to understand			☑
	Course is Easy to Navigate			☑
Course Syllabus	The syllabus clearly identified what role the online environment would play in the course.			☑
Aesthetic Design	Aesthetic design presents and communicates course information clearly throughout the course			☑
Consistency	Webpages are visually and functionally consistent throughout the course			☑
Instructional Design and Delivery				
Communication and Interaction	Course offers ample opportunities for communication and interaction between student to student,		☑	
	student to instructor		☑	
	student to content			☑
Enhancing student learning	Course provides multiple visual, textual, kinesthetic and/or auditory activities to enhance student learning			☑
Innovative Teaching with Technology				

Use of Technology	Course uses a variety of technology tools to appropriately facilitate communication and learning		☑	
Interactive Teaching	New teaching methods are applied to enhance student learning and interactively engage students			☑
Learner Support				
Support for Course Content	Course offers access to a wide range of resources supporting course content			☑

Table 2: Self-evaluation of course components after redesign

Concluding Reflections:

This re-design project was my first as an independent instructional design and technology consultant and offered me valuable insights and lessons on balancing my vision of instructional design and technology implementation with the needs and capacity of the client, for sustainable change. For instance, there was a suggestion from another consultant I was initially working with on this project to design a course website outside of Angel LMS and just use the LMS as a shell to display the website. This was a very tempting suggestions as it would have given me much more latitude to design a visually impressive and interactive course, but after some reflection on the technology skills of the instructors and the IT support available to them, I decided against it because doing so would have made them dependent upon me for the long term for any changes to the content. Thus, in the best interests of maintaining the client's control over their own course and keeping the technology at their comfort level, I decided to make the most of the Angel interface. This was the principle we had upheld at Learning Design Solutions – to offer clients solutions customized to their needs and technology availability instead of imposing what we thought should be done.

Some legal issues also came to the forefront which interfered with my idea of how I wanted the content to be delivered and I had to accept that and work within those parameters. For instance, the Angel tutorials in the orientation course were just scanned pages from the Angel instructional manual which I would have preferred to change completely. Meanwhile, the faculty had access to very cleanly designed 'Evergreen' tutorials from Angel. I saw this as an ideal solution and was pushing for incorporation of the Evergreen pages to replace the scans. However, it seems that these tutorials were licensed only for faculty use and the director wasn't too comfortable to ask for wider access from the university. I was disappointed, but respected the legal limitation.

A similar toning down was done in the implementation of the PowerPoint autobiographies to stimulate student to student interaction. In my design plan, I wanted to implement an interactive student grid on the course homepage, similar to the faculty grid and link these with the individual student PowerPoints (Figure 11. Video 3). But since the orientation course was an open ended one, with no fixed cohort in it at any one point, it made implementation and maintenance an issue. It was decided to use the roster space instead. I am told, however, that my suggestions were not

discarded and the grid I had envisioned is being implemented in other courses which have a fixed student population at any one time.

The overall experience of working with DMU as an external consultant was very gratifying with full and ready cooperation from every relevant department of the college. A particularly enabling experience was the process of embedding the welcome messages into the Angel pages. What I thought would be a simple task of inserting links to existing videos turned out to be a ten day endeavor involving the Angel helpdesk, DMU Marketing and Commerce, DMU User Support Services and even the Chief Information Officer with helpful interventions by the PPDPT Program Director. My initial attempts at using the existing video links and inbuilt features of the LMS to embed the videos produced very inconsistent results, which led me on an exploration of different options (YouTube/Google videos) and various video formats. With constant interaction and feedback from all these departments, a very favorable solution was reached with the end result being better than I had envisaged. Such is the nature of technology where something as simple as an extra space in the html code can hold up implementation.

This experience was invaluable to me as an external consultant because I was acutely aware of how powerless I was being on the outside and not knowing the internal structure of the client institution. What helped me achieve this measure of cooperation was prompt and open communication and conveying sincerity of purpose when insisting on a solution that would produce a consistent experience for all students, and finally, the flexibility to work with solutions offered, respecting the legal and other boundaries of readiness that may exist.

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