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**Design-based Research Plan**

**Statement of the Problem:** Designing in-house Learning Management Systems (LMS) for a higher education institution is a challenging process of research and iterations of design. An e-learning tool was designed by the IT team of a higher education institute in Lebanon in order to use it as a folder sharing tool and a mean of communication with the students. The tool will be also used for online course delivery as a next step. This current version of the LMS is very basic and has minimal interactive and pedagogical features that support learning. The Design-based research plan will provide a description of the revision cycles that the tool will go through, hoping to elevate its pedagogical features to maximize learning in online course delivery. Implications for designing online learning tools that promote learning will result from this design-based research study.

**DBR Goal:** Revise an existing in-house LMS for a higher education institution in Lebanon to enhance the pedagogical structure of the tool to facilitate online course delivery.

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| **ILDF Phase** | **Informed Exploration (Summer 2012)** | **Enactment** **(Fall 2012)** | **Evaluation: Local Impact** **(Spring 2013)** | **Enactment****(Summer 2013)** | **Evaluation: Broader Impact (Fall 2013)** |
| ***Description of the LMS (pedagogy and Interface)*** | The existing LMS called “E-learning” supports basic pedagogical as well as interface features:* folder sharing,
* email exchange,
* final grade center,
* roster,
* a very basic discussion board,
* a group work area.
* Course list
* Little design is provided for the interface. It has a white background with the institution’s logo.
* Easy to navigate due to minimal features
* The tool runs on the following browsers:
* Google Chrome
* Mozilla Firefox 3+
* Internet Explorer 7+
* Safari 4+
* Opera 9+
* Student and Faculty tutorials are provided
* More data on tech specifications will be collected through the informed exploration
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| ***Focus of Cycle*** | The focus of this cycle will be on gathering data to identify the pedagogical theory behind the design of the current Elearning LMS (by surveying the literature and interviewing the IT team) and the technical features of the tool (by interviewing the IT team).This cycle will also gather data on faculty and students’ perspectives of the existing LMS: strengths and weaknesses (through a survey). A comparative analysis of existing LMSs primarily Blackboard and Moodle will be explored to identify pedagogical features that support learning. | Meet with the IT team who designed the tool and refine the features of the existing tool based on the analysis of the data collected in the informed exploration phase. | The focus of this cycle will be on focus groups to identify the impact of the added features on the learning and the faculty/student satisfaction in using the Elearning tool. The participants will be faculty and students who have used the refined tool. The tool will also be observed in action in an online course. Specifically the affordances of the tool will be observed to check for highly used features and least used features. Results from observations will inform the focus group questions.  | Meet with the IT team who designed the tool and refine the features of the existing tool based on the data analysis of the feedback collected in the local impact phase. | The focus of this cycle will be on observing 2 online courses in action to look for glitches in the tool. the observations will be followed up by interviews to inform the revisions for the E-learning tool. |
| ***DBR Questions*** | *-What are identified gaps/problems in theory, practice and/or the marketplace?**-what are identified weaknesses in the existing version of the LMS?**- What information can be gleaned from existing data or research?**-What is the level of readiness of the students and the faculty members to adopt the existing LMS?**- What are the systemic social, cultural, and**organizational influences or constraints on the LMS design?**- What are characteristics of the students and the faculty who use the LMS?**Adapted from Bannan in Plomp and Nieveen (2007)* | *- What are the learning targets for the innovation?**- What design principles or strategies may**be applicable?**- How to identify and operationalize**cognitive and performance processes**in design?**- To what extent does the design embody**the theoretical model?**Adapted from Bannan in Plomp and Nieveen (2007)* | *- Is the enacted LMS usable, valid and relevant?**- Is the LMS accessible and efficient in delivering instruction or supporting learning?**- What is the local impact or effectiveness of the LMS?**Adapted from Bannan in Plomp and Nieveen (2007)* |  | -*What factors influence diffusion, adoption and adaption of the LMS?**- What are the pragmatic demands of the learning environment that influence adoption of design?**- What policies and cultures shape**Participants’ use of innovation?**Adapted from Bannan in Plomp and Nieveen (2007)* |
| ***Methods*** | *Needs Analysis:** Interview the IT team
* Survey the students
* Survey the Faculty
* Observe the use of the LMS by assisting a faculty member in designing an online course

*Survey Literature** Comparative analysis (Moodle and Blackboard)

*Theory Development**Audience Characterization:** Student Persona
* Faculty Persona
 | *Research System Design**Articulated Prototype**Detailed Design* | *Formative Testing:** Faculty Focus Groups
* Observe Course implementation using the LMS
* Expert Review

*Evaluate Results**Theory System Refinement**Implement:** Survey the students
* Survey the faculty
 | *System Refinement based on results from formative testing.* | *Summative Testing:** Observe course implementation using the LMS.
* Interview faculty who used the tool to teach an online course

*System Refinement* |
| ***Participants*** | *Faculty at the university where the Elearning tool is being used.**Students who are using the tool**The IT team who developed the tool**A faculty member who is designing an online course* |  | *Faculty members who used the revised version of the tool**LMS experts**Faculty members who are using the course to teach online* |  | *Faculty members who are using the tool.* |
| ***Key Findings*** |  |  |  |  |  |
| ***Key Changes to the LMS*** |  |  |  |  |  |