

Learning Design Studio: a Pedagogically Grounded Productivity and Collaboration Platform for Learning Design and Analytics Professionals

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ABSTRACT: In recent years, there is an increasing recognition of the value of positioning ‘teaching as design’ (Brown & Edelson, 2003; Goodyear, 2015; Recker et al., 2007) and ‘teachers as design professionals’ (Laurillard, 2002). Underpinning this recognition is the idea that teaching in the knowledge era should shift from a focus on transmitting knowledge to designing conducive learning environments and experiences to nurture learners’ intellectual capacities for 21st century outcomes, grounded on learning sciences-based design principles. In parallel to the developments in learning design are rapid advances in e-learning deployment such as MOOCs, and the application of data analytics and visualization technology to the massive amounts of data generated by learners on online e-learning platforms, particularly on MOOC platforms. In this context, researchers see a great potential in the possible synergy between Learning Design (LD), Learning Analytics (LA) and Teacher Inquiry into Student Learning (TISL), which can together form a virtuous circle for continuous improvements of teaching (McKenney & Mor, 2015; Mor, Ferguson, & Wasson, 2015). It is argued that ‘learning analytics offers a powerful set of tools for teacher inquiry, feeding back into improved learning design. However, the promises of LA to improve teaching and learning have largely not been realized for various reasons, including teachers’ lack of understanding of LA (Corrin et al., 2016).

Keywords: Learning design, learning analytics

1 INTRODUCTION (PURPOSE)

In recent years, there is an increasing recognition of the value of positioning ‘teaching as design’ (Brown & Edelson, 2003; Goodyear, 2015; Recker et al., 2007) and ‘teachers as design professionals’ (Laurillard, 2002). Underpinning this recognition is the idea that teaching in the knowledge era should shift from a focus on transmitting knowledge to designing conducive learning environments and experiences to nurture learners’ intellectual capacities for 21st century outcomes, grounded on learning sciences-based design principles. In parallel to the developments in learning design are rapid advances in e-learning deployment such as MOOCs, and the application of data analytics and visualization technology to the massive amounts of data generated by learners on online e-learning platforms, particularly on MOOC platforms. In this context, researchers see a great potential in the possible synergy between Learning Design (LD), Learning Analytics (LA) and Teacher Inquiry into Student Learning (TISL), which can together form a virtuous circle for continuous improvements of teaching (McKenney & Mor, 2015; Mor, Ferguson, & Wasson, 2015). It is argued that ‘learning analytics offers a powerful set of tools for teacher inquiry, feeding back into improved learning design. However, the promises of LA to improve teaching and

learning have largely not been realized for various reasons, including teachers' lack of understanding of LA (Corrin et al., 2016).

The Learning Design Studio (LDS^{HE}) is an online productivity tool and collaboration platform for learning designers and learning analytics practitioners, developed as an integral part of an on-going project titled "An Open Learning Design, Data Analytics and Visualization Framework for E-Learning" (Law et al., 2017). In this DesignLAK18 proposal, we would like to offer the LDS^{HE} system for testing by workshop participants to evaluate its ability to represent the learning designs of courses, with particular focus on the system's ability to identify the type(s) of Learning Analytics tools and visualization displays that would be appropriate for informing the teachers/learning designers/students for different course learning outcomes and pedagogical designs.

2 LDS^{HE}: UNDERPINNED BY A PRINCIPLED DESIGN PATTERN LANGUAGE CONNECTING LD AND LA

In its design conceptualization, the ultimate purpose of LDS^{HE} is to serve as a platform to connect the LD, LA and TISL communities. To do so requires a common design language that can (1) capture well-constructed pedagogical practices and the underpinning learning design principles, as well as specify the necessary learning analytics appropriate for the intended learning outcomes and chosen pedagogy, and (2) be understood by practitioners and researchers in all of the three targeted communities. To achieve this goal, a major part of the R&D effort in this project is to develop a pattern language, which has been greatly inspired by both the outcome-based educational approach (OBE) (Harden, 2002; King & Evans, 1991), and the Alexandrian pattern language (Alexander, 1964, 1979; Alexander, Ishikawa, & Silverstein, 1977). OBE is an approach that organizes an educational system around what is essential for students to achieve at the end of their learning experience (Harden, 2002; King & Evans, 1991). In this approach, course planning starts with the identification of learning outcomes, followed by a backward design of the learning tasks and assessments to achieve the intended learning outcomes. This approach leads to a constructive alignment between learning outcomes, learning tasks and assessments. OBE advocates a shift in the curriculum design focus from subject matter content as prescribed in textbooks or standardized assessments, to the competencies and performance expected of students after completing a course (King & Evans, 1991). The pattern language developed by Alexander focuses on making the design values and successful design features of spaces and buildings at different levels of granularity explicit (Alexander, 1964, 1979). Alexander's (1977) pattern language comprises of design patterns, which are defined as the core of the solutions to recurrent problems and can be used repeatedly without doing things in the exact same way twice.

The LDS pattern language differs from the Alexandrian pattern language in that it provides a formalism (or language) which can be used to construct design patterns at different levels of granularity in learning design (Law et al., 2017) such the number and characteristics of the patterns that can be constructed is not limited to a fixed number as in the case of the Alexandrian pattern language. This pattern language is being extended such that it can be used to specify LA tools and visualizations for LD patterns represented in the pattern language.

3 A BRIEF INTRODUCTION TO LDS^{HE}

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The screenshot displays the Learning Design Studio (LDS) HE interface. At the top, there is a navigation bar with 'Learning Design Studio^{HE}', 'Home', 'My Designs', and 'New Design' buttons. The user is logged in as 'MITE6023'. Below the navigation bar, there are tabs for 'Learning Design' and 'Designer's Dashboard'. The main content area is titled 'Learning Context & Characteristics of the Course' and contains the following fields:

- Course Title:** MITE6023 Information Technology and Educational Leadership - WS
- Subject:** e-Leadership
- Semester of Course Offering:** fall 2017
- Teacher / Instructor:** Prof. Nancy Law
- Class Size:** 25
- No. of Sessions:** 8
- Mode of Learning:** Blended
- Teaching Contact Time:** 23.4 (hours) / 1405 (minutes)
- Self-study Time:** 72.1 (hours) / 4325 (minutes)
- Type of Course:** Core
- Prerequisites:** Not applicable
- Purpose:** The aim of this module is to provide students with the necessary knowledge and working methods to implement local IT policies and strategies at the institutional level and beyond. The course offers a comparative perspective for benchmarking local and international practices and identifies contemporary leadership issues concerning the implementation of information technology in education across multiple levels. In order to achieve this aim the module examines Hong Kong policies and practices with international examples. It situates leadership issues within the broader literature on pedagogical innovation and educational change, and discusses contemporary leadership issues in the implementation of ICT in education at different levels of the education ecosystem.
- Session Duration:** Session Duration (min)
- Pre+Post Session Duration:** Pre+Post Session Duration (min)

Below the course details is the 'Learning Outcomes' section, which contains a table with the following content:

Type	
Disciplinary Knowledge	
1	ICT in Education policies in HK and other countries: history and current trends

Figure 1. The LDS^{HE} design interface at the course level.

The screenshot displays the Learning Design Studio (LDS) HE interface at the unit level. The top navigation bar includes 'Home', 'My Designs', 'Public Designs', and 'Pattern Library'. Below this is the 'Designer's Dashboard' with 'Course Level', 'Unit Level', and 'Session Level' tabs. The main workspace is a grid where tasks are arranged. A vertical sequence of seven tasks is shown, connected by downward arrows. The tasks are: 1. RS-evolution of ICTE policies, 2. RS-ICT in curriculum & context, 3. RS-teachers as co-designers of TEL innovations, 4. RS-models of educ change & sustainability, 5. RS-CoP & Architectures for Learning, 6. RS-sociotechnical co-evolution at multiple levels, and 7. RS-educ ecologies & pathways to scalability. The interface also features a 'Task Types' sidebar on the left and a 'Navigation' sidebar on the right.

Figure 2. The LDS^{HE} design interface at the unit level.