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## **From Global Theories to Local Practice and Original Knowledge: Learning the Way through Systems Co-Design**

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### **Abstract:**

*Information focused, learning centered, and systems enabled, Informed Systems (Somerville, United States) guides collaborative design (co-design) of the University for Business and Technology Knowledge Center in Pristina, Kosovo. Conceptual modeling activities since April 2017 engage students in integrating Informed Learning theory (Bruce, Australia) and Soft Systems Methodology (Checkland, England) to progress a shared vision to make local knowledge visible through co-created systems, services, and resources. Foundational Informed Learning categories, information and communication technologies, information sources, and information and knowledge generation - to progress information curation and knowledge management – illustrate the transformative potential of this theory-to-practice initiative, customized to local priorities and values.*

**Keywords:** Informed Systems, Informed Learning, Kosovo

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## **Informed Systems Context**

Informed Systems (Somerville, 2015) creates learning conditions within design activities that catalyze knowledge, evolve practices, and generate systems *for and with* participants. Antecedent relational information literacy theory, enacted as Informed Learning (Bruce, 2008; Bruce, et al., 2017), animates systems design and informs information processes. Additionally, Soft Systems Methodology (Checkland, 1981, 2000) initiates and advances ‘using information to learn’ through collaborative design (co-design) methodologies. As integrated in Informed Systems, this antecedent theory and applied methodology recognizes that knowledge ecosystems are enlivened through complex dialogic interactions among people, technology, and content.

Since 2003, three Informed Systems initiatives in North America have demonstrated the efficacy of this multi-disciplinary systems co-design approach (Somerville, 2009; Somerville, 2015). In the most recent instance, at University of the Pacific (UOP) in Stockton, California, USA, participants generated and analyzed ‘information experience’ (Bruce, et al., 2014) narratives, as the basis for designing intentional workplace learning systems (Somerville, et al., 2017; Somerville, et al., 2018) to enable information experience. This research-in-practice refinement was then adopted and adapted at University for Business and Technology (UBT) in Pristina, Kosovo. Consistent with earlier initiatives, this Informed System initiative fosters heightened awareness of information in context, which advances information experiences and learning experiences simultaneously (Somerville & Bruce, 2017; Somerville & Mirijamotter, in Bruce, et al., 2014).

In this paper, co-authors from Kosovo, Sweden, Australia, and the United States describe and interpret the introduction of Informed Systems in Kosovo, a transition nation in the Western Balkans. Whereas earlier initiatives in the United States focused only on amplifying workplace learning through systems co-design, this South East Europe initiative aims, more broadly, to initiate sustainable student learning through participatory co-design of a university ecosystem, the Knowledge Center described below. It is further distinguished from earlier initiatives by the magnitude of initiative ambitions: to build upon university knowledge so as to advance Kosovo society.

## **Knowledge Center Genesis**

In setting the founding vision for the University for Business and Technology in 2001, founder and President Dr. Edmond Hajrizi sought to prepare Kosovar students to be active contributors to society, within the country, the region, and beyond. Now, seventeen years later, the Knowledge Center initiative acknowledges the University’s continuing responsibility to foster democratic civil society and regional economic growth, as well as further smart business practices and higher education efficiencies, through knowledge sharing for knowledge generation. This commitment mirrors IFLA Global Vision values and goals, most especially applying innovative practices and tools, sharing expertise and resources, and advancing solutions to provide access and ensure preservation of the world’s documentary heritage (IFLA, 2018).

The Knowledge Center vision also aligns with other UBT innovation and incubation initiatives, which recognize that ideas, people, and technology – in relationship and through connection - enliven thinking and inform growth that activates human potential and enriches

social progress. Of special significance for this new nation – which celebrated its tenth anniversary in February 2018, inclusive and participatory co-design activities aim to initiate and sustain working relationships among UBT faculty, staff, and students for the purpose of building a UBT knowledge base comprised of systems, services, and resources which together create an intentional university learning ecosystem. This requires systemic progression from concept to design to implementation and transformation - to animate creativity and innovation, accelerate adoption and adaption, and amplify experience and knowledge. Anticipated outcomes recognize the potential for curation of local scholarly content in an institutional repository, which complements the academic publisher content accessible through the university library.

Conceptual design of the Knowledge Center was advanced in spring semester 2017 during a graduate ‘soft’ systems modeling course using human-centered methodologies, which placed the initiative within the larger global knowledge network. Student-generated design recommendations prioritized co-creation of a digital environment to advance local knowledge curation, preservation, and access. They also recognized the importance of cultural practices, including acquisition, organization, and dissemination workflows, to promote student and faculty curation, interpretation, and usage of student research projects, faculty research papers, and community research reports (Hajrizi, et al., 2017a; Mirijamdotter, et al., 2017; Hajrizi, et al., 2017b). Finally, students suggested intensifying efforts to enable online access to published academic scholarship through aggregated academic publisher databases (for journals) and an online public access catalog (for books), which was accomplished during the next several months, significantly aided by advice from an Australian ‘librarian beyond borders’ professional volunteer.

### **Knowledge Center Modeling**

A knowledge vision for the University for Business and Technology Knowledge Center advanced during summer 2017, during a Fulbright Specialist Program residency. Its aim, to make ‘local knowledge visible’ through discovery and access to University student, faculty, and staff scholarship and creative work, anticipates that, over time and with practice, students’ assignment workflows will identify earlier projects and reports on their subjects of interest. Discovery and usage would build a national knowledge base in the (primarily) Albanian language, through intentionally building upon earlier student and faculty research, scholarship, and creative work. Open access to this faculty and student work would ensure worldwide dissemination of a growing corpus of UBT thought. Usage would exponentially increase with the addition of English language content translations. Such aspirations both predict relevance to Kosovar community readers and fortify UBT’s lead role in national and regional knowledge generation.

To enliven this shared vision and ambitious purpose, a University for Business and Technology professor selected exemplar undergraduate computer science research papers completed in fall semester 2017, to populate an institutional repository. In May 2018, she and international faculty used human-centered (‘soft’) participatory design tools and Informed Learning elements to guide systems modeling by undergraduate computer science students and graduate information system students, who co-created visionary institutional repository environments.

## **Informed Learning Analysis**

Systems design activities began with exploration, including pictorial representation of individual student's academic research experiences, when they were 'using information to learn'. This initial exploration of the relationship between information and its context of use focused on the first three Informed Learning categories, foundational to this purpose:

1. Information and communication technologies: Harnessing technology for information and knowledge retrieval, communication, and management;
2. Information sources: Using information resources (including people) for academic learning and action taking
3. Information and knowledge generation processes: Developing personal practices or heuristics for finding and using information for novel situations (adapted from Bruce, et al., 2012).

Student drawings were then shared to clarify common patterns. Results demonstrated that while students typically used academic library resources, building upon the work of published others, they never used content produced by their UBT peers or professors. This 'missed opportunity' – to purposefully extend the corpus of UBT Kosovar scholarship - guided subsequent systems design and human activity modeling. Students' collective capabilities evolved through iterative evaluation and re-design activities, aimed at continuous improvement and continual learning, thereby anticipating the conditions for learning within a vibrant knowledge ecosystem that values *making local knowledge visible and promoting local knowledge creation*.

## **Informed Learning Activation**

In building upon the earlier University of the Pacific initiative, the University for Business and Technology shared a similar institutional aim: "to guide our thinking about how we want to share information, save information, and use information" (Somerville, et al., 2018, p. 2). Both projects also shared a common intention: "to ensure that choice of technologies and development of practices reflect the best of how we work now" (Somerville, et al., 2018, p. 2). Finally, both projects sought to 'bridge' (Somerville, et al., 2018) individual learning capability and collective learning capacity through purposefully connecting information and learning, enabled by technology and enacted by people, *during systems design and within designed systems*.

One student group expressed the challenge and the opportunity in this way: "you are part of an institution and you are willing to generate some knowledge, but have no way of storing it or sharing it; or you're looking for some important information that would have helped you on your work but you have no way of reaching it" (Hajrizi, et al., 2017c). Placing the initiative within the broader context of Kosovar society, another group problematized the situation in these terms: "Kosovo society lacks a free platform for gathering and storing information so Albanian speaking students can access reliable information in the Albanian language."

In response, students recommended a well-structured online platform to offer easy access, update knowledge assets, and manage information flow, as communicated in the fourth Informed Learning category:

4. Information curation and knowledge management: Organizing and managing data, information, and knowledge for future academic needs (adapted from Bruce, et al., 2012).

Persistent communication consistently emerged as a theme, presently expressed through conversations between students and professors in the academy and sometimes augmented by conversations between students and experts outside the university. So students recommended rich conversation opportunities in the Knowledge Center institutional repository environment, “offering a way to benefit and widen your perspective while getting tips and learning tricks from others who have gone through the same ‘adventure’” (Hajrizi, et al., 2017c).

Since learning is social, learning relationships also emerged as essential, orchestrated by a ‘virtual’ librarian who creates personalized experiences through personal relevance frames. For instance, students imagined, “with the librarian caring all the time” (Hajrizi, et al., 2017c), that they would navigate easily among the various local knowledge spaces, which complement The Library. For instance, they envisioned TutoDemy, which consists of video tutorials created by students and professors; HUBt, which contains community inquiries answered by community members – “part of the shared ‘wisdom’”; The Shelf, which curates UBT projects, papers, and reports; and Outside the Box, which improves thinking through resource recommendation and problem solving – “to keep the creativity up” (Hajrizi, et al., 2017c) and “secure connections with others to create knowledge”. In these ways, students anticipated becoming “producers of something useful to society.”

Social computing surfaced as ubiquitous in students’ personal and academic lives when they described Informed Learning categories 1 - 3. So, not surprisingly, their system design models and human activity models reflected a deep and broad conversance with human-computer interaction tools and techniques. For instance, familiar with their UBT professor’s doctoral studies, they suggested recommender systems to refer student searchers to ‘like’ the appropriateness of the content, which will have an impact on recommending and ranking the content by using the earlier users’ experiences through artificial intelligence techniques (Pireva & Kefalas, 2017; Imran, et al., 2016). Students further counseled: “As always, remember that the librarian is keeping an eye on you: what you ask or answer builds your profile” (Hajrizi, et al., 2017c), so “the more a user uses the Knowledge Center online platform, the more he will yield benefits ... ending up in exponential growth of the traffic” (Hajrizi, et al., 2017c). This approach furthers the idea of creating the Knowledge Center as an expert system, which learns from user experiences. It follows that the more the Knowledge Center is used, the more experiences will be collected and analyzed, to thereby advance the system’s ranking and recommending of appropriate content based on personalized profile characteristics (Pireva, et al., 2017).

### **Knowledge Center Reflections**

Within higher education across the globe, original knowledge emerges through exchange of resources, ideas, and experiences. Therefore, from the start, Informed Systems co-design activities at the University for Business and Technology necessarily engaged beneficiaries of the system-in-design in the continuous learning cycles which the designed system aims to promote. Complementary information- and learning-focused theories and processes – Informed Learning and Soft Systems Methodology - were adopted and adapted. This research-to-practice-to-research initiative reveals the phenomenon as a whole, within which learning is understood as changes in the experience of the phenomenon of how local scholarship is curated, organized, discovered, used, and preserved. The Kosovo instance illustrates the efficacy of adopting and adapting high level theory through research into practice and then back again as a transferable model to be adopted and/or adapted to local cultural values and priorities of benefit to the institution, the nation, the region, and beyond.

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